ECONOMIC CRISIS IMPACTS ON CHILDREN AFTER THREE YEARS: EVIDENCE FROM THE INDONESIA FAMILY LIFE SURVEY

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1. The economic crisis in Indonesia

The Asian financial crisis in 1997 and 1998 was a serious blow to what had been a thirty year period of rapid growth in east and southeast Asia (see World Bank, 1998, for one of many discussions of the crisis in Asia). During this long period before the crisis, massive improvements occurred to many dimensions of the living standards of these populations (World Bank, 1997). In Indonesia, for instance, the poverty headcount rate declined from almost two-thirds in 1975 to just 11 percent by 1996. In August 1997 the economic crisis began to be felt in Indonesia, although the major blows began only in December 1997 and January 1998. Real GDP declined 12-14% in 1998, stayed constant in 1999 and finally began growing in 2000, by 4.5%. Figure 1 shows the movement of the monthly rupiah-US dollar exchange rate over this period. One can see a depreciation of the rupiah starting in August, but with a massive decline starting in January 1998 and appreciating substantially after September 1998, but slowly depreciating once again starting at the end of 1999, through 2000.

As the prices of tradables increased, this included foodstuffs. Arguably any major impact on Indonesians, except those at the top of the income distribution, during this period occurred precisely because of the massive increase in food prices. The food share of the typical Indonesian's household budget is approximately 55% in urban areas and 64% in rural. Figure 2 shows estimates from Kaiser, Choesni, Gertler, Levine and Molyneaux (2001) of the monthly food price index for rural and urban areas of Indonesia from January 1997 to March 2000. One can see that starting in January 1998 and continuing through March 1999, nominal food prices exploded, going up three-fold, with most of the increase coming by September 1998. In countries without good safety net systems, this kind of food price increase has historically often led to major famines (Ravallion, 1997). This did not occur in Indonesia during this period, partly because nominal wages also rose during this period, although not nearly as fast as food prices. Still, with this kind of economic shock, one would expect to find serious welfare consequences. In this paper we focus on the poverty and health of children.

Different sectors of the economy were affected quite differently. Macroeconomic data from the Statistics Indonesia (BPS) show that the decline in GDP in 1998 hit investment levels hardest. Real gross domestic fixed investment fell in 1998 by 35.5 percent, while real private consumption declined by only 3.3 percent. This would indicate that one might not find large real welfare losses among households as a group.[1]

If the household sector was hit, it is likely that different groups of people were affected rather differently. For instance, farmers who are net sellers of foodstuffs may have seen their real incomes rise

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[1] Recently divergences have been noted between movements in aggregate income and income measured in household surveys, see Deaton (2001) for a good discussion.

over this period (although prices of many key inputs, such as fertilizer, also increased dramatically). Furthermore, in 1997 there was a serious rural crisis caused by a major drought, especially in the eastern parts of Indonesia, so that compared to 1997 farmers especially in eastern provinces may have had increased crop yields and profits in 2000. In addition, in 1997 there were serious forest fires throughout much of southeast Asia, which led to serious smoke pollution in many areas, in turn which evidently led to health problems in some parts of the population (Sastry, 2002). Even within the household, it may be that women were affected quite differently from men, or that children were as compared to adults.

In this paper, we use the Indonesia Family Life Surveys (IFLS) to examine the welfare of children during the crisis, focusing especially on health. Waves of IFLS span the period of the 1998 crisis, as shown in Figure 1. The second wave of the survey, IFLS2, was fielded in late 1997 and the third full wave, IFLS3, in late 2000. IFLS allows a comprehensive examination of individual, household and community welfare. Data are gathered on household expenditures, allowing one to examine what happened to real expenditures and to poverty. IFLS also contains information on many other topics which are of central interest in the assessment of welfare changes. Of these, there is an especially rich set of data regarding health. Since IFLS is a panel survey it is possible to analyze changes for specific communities, households and individuals.

With these data one has the unique opportunity to investigate the medium term impacts of the crisis on health and other measures of welfare. These results can then be compared to an analysis of very short-term crisis impacts documented by Frankenberg, Thomas and Beegle (1999), who analyzed the differences between IFLS2 and a special 25% sub-sample, IFLS2+, that was fielded in late 1998.

We start in Section 2 with a description of IFLS, its sampling of households and individuals. IFLS follows a cohort of individuals and their families; it does not necessarily retain representativeness of the Indonesian population. We provide evidence on how characteristics of waves 2 and 3 of IFLS compare to those of large-scale representative household surveys fielded in the same years. We then go on in Section 3 to show what happened to the poverty of children in the IFLS sample between 1997 and 2000.[2] Section 4 provides details of different dimensions of child health over this period and Section 5 examines what happened to a set of health inputs used by children, at both the individual and health facility levels. Section 6 concludes.

2. IFLS Description and Representativeness

IFLS Sample Description

[2] In this paper, we measure poverty using information on household consumption expenditures (and not income), as is standard in lower-income settings.

Selection of Households

IFLS1

The first wave of IFLS was fielded in late 1993, between August and January 1994.[3] Over 30,000 individuals in 7224 households were sampled. The IFLS1 sampling scheme was stratified on provinces, then enumeration areas were randomly sampled within them, and households within enumeration areas. Provinces were selected to maximize representation of the population, capture the cultural and socioeconomic diversity of Indonesia, and be cost-effective given the size of the country and its transportation and telecommunications limitations in 1993. The resulting sample spanned 13 provinces on Java, Sumatra, Bali, Kalimantan, Sulawesi and Nusa Tenggara.[4]

Some 321 EAs in the 13 provinces were randomly sampled, over-sampling urban EAs and EAs in smaller provinces. Urban EAs were over-sampled because they were less expensive to visit and because urban-rural comparisons were of interest due to the country's rural-to-urban transition.

From each urban EA, 20 households were selected randomly, while 30 households were randomly chosen from each rural EA. This strategy minimized expensive travel between rural EAs and reduced intra-cluster correlation across urban households, which tend to be more similar than rural households. A household was defined as a group of people whose members reside in the same dwelling and share food from the same cooking pot (the standard Central Bureau of Statistics definition).

In the IFLS1, a total of 7,730 households were selected as the original target sample. Of these households, 7,224 (93 percent) were interviewed. Of the 7 percent of households that were never interviewed, approximately 2 percent refused and 5 percent were never found.

IFLS2

Main field work for IFLS2 took place between June and November 1997, just before the worst of the economic crisis hit Indonesia.[5] The months were chosen in order to correspond to the seasonal timing of IFLS1. The goal of IFLS2 was to resurvey all the IFLS1 households. Moreover, IFLS2 added almost 900 households by tracking individuals who “splitoff” from the original households. In addition, approximately 10-15% of households had moved from their original location and were followed.

If an entire household, or a targeted individual(s) moved, then they were tracked as long as they still resided in any one of the 13 IFLS provinces, irrespective of whether they moved across those

[3] See Frankenberg and Karoly (1995) for complete documentation of IFLS1.
[4] The provinces are four from Sumatra (North Sumatra, West Sumatra, South Sumatra, and Lampung), all five of the Javanese provinces (DKI Jakarta, West Java, Central Java, DI Yogyakarta, and East Java), and four from the remaining major island groups (Bali, West Nusa Tenggara, South Kalimantan, and South Sulawesi).
[5] See Frankenberg and Thomas (2000) for full documentation of IFLS2.

provinces. Individuals who split off into new households were targeted for tracking provided they were a "main respondent" in 1993 (which means that they were administered one or more individual questionnaires), or if they were born before 1968 (that is they were 26 years and older in 1993). Not all individuals were tracked in order to control costs.

The total number of households in the IFLS2 was 7,619, of which 6,742 were panel households and 877 were split-off households. This is a completion rate of 94 percent for the IFLS1 households still alive. One reason for this high rate of retention was the effort to follow households that moved from their original housing structure. Fully 11 percent of the panel households reinterviewed in the IFLS2 had moved out of their previous residence. About one-half were found in relatively close proximity to their IFLS1 location (local movers). The other half were "long-distance" tracking cases who had moved to a different subdistrict, district, or province.

IFLS2+

IFLS2+ was fielded in late 1998 in order to gage the immediate impact of the Asian economic crisis that had hit Indonesia starting in January 1998. Since time was short and resources limited in the IFLS2+, a scaled-down survey was fielded, while retaining the representativeness of IFLS2 as much as possible. A 25 percent subsample of the IFLS households was taken from 7 of the 13 provinces that IFLS covers.[6] Within those, 80 enumeration areas were purposively selected in order to match the full IFLS sample. As in IFLS2, all households that moved to any IFLS province were tracked, as were new splitoffs, using the same criteria as in IFLS2.

IFLS3

Main field work for IFLS3 went on from June through October, 2000.[7] The sampling approach in IFLS3 was to return to the full IFLS sample and re-interview a set of "target" households: all original IFLS1 households, plus splitoff households from both the 1997 and 1998 waves. As in 1997 and 1998, households that moved and splitoff households were followed, provided that they still lived in one the 13 provinces covered by IFLS, or in Riau.[8] Some 10,400 households were interviewed, containing over

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[6] The provinces were Central Java, Jakarta, North Sumatra, South Kalimantan, South Sumatra, West Java and West Nusa Tengarra.

[7] Funding for IFLS3 field work comes from the National Institute of Aging, grant number 1R01AG17637-01 and from the National Institute of Child and Human Development, grant number 1R01HD38484.

[8] There were also a small number of households who were followed in Southeast Sulawesi and Central and East Kalimantan because their locations were assessed to be near the borders of IFLS provinces and thus within cost-effective reach of enumerators. For purposes of analysis, they have been reclassified to the nearby IFLS provinces.

43,600 individuals. Of the total, there were 2,645 new splitoff households. A 94.5% recontact rate of all "target" households was achieved, which includes 6,774 original 1993 households, or 93.8% of those.

The tracking rules for splitoff households were expanded in IFLS3. These rules included tracking those who would have been tracked in IFLS2 and 2+: that is 1993 main respondents and those 1993 household members born before 1968. Added to those, were all individuals born since 1993 in original 1993 households; those born after 1988 if they were resident in an original household in 1993; 1993 household members who were born between 1968 and 1988 if they were interviewed in 1997; and a 20% random sample of those born between 1968 and 1988 who were not found in 1997. The motivation behind this expansion was to be able to follow small children in panel households, who were 5 years and under in 1993 and children born subsequently to 1993, and to follow at least a subset of young adults, born between 1968 and 1988. This strategy will keep the sample, once weighted, as representative of the original 1993 sample.

Selection of Respondents within Households

IFLS2

In IFLS, household members are asked to provide in-depth individual information on a broad range of substantive areas, such as on labor market outcomes, health, marriage, and fertility. In IFLS1, not all household members were interviewed, for cost reasons.[9] Those that were interviewed we call main respondents. In IFLS2, this procedure was reversed. In original 1993 households found in 1997, interviews were conducted with all current members, regardless of whether they were household members in 1993, or were main respondents. Among the split-off households, all tracked individuals (that is those who were 1993 main respondents, or who were born before 1968) were interviewed, plus their spouses, and biological children.

IFLS3

For IFLS3 the individual selection rule used in IFLS2 was continued for original 1993 households, that is all current residents who could be contacted were interviewed. For splitoff households, whether a splitoff from 1997, 1998 or new in 2000, the selection rule was broadened to include all individuals who had lived in a 1993 household, whether or not they had been targeted to be tracked; plus their spouses and biological children.

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[9] See Frankenberg and Karoly (1995) for a discussion of the IFLS1 selection procedures.

Comparison of IFLS Sample Composition with SUSENAS

IFLS 2 and 3 are designed to stay representative of the original 1993 IFLS1 households, which were in turn representative, in 1993, of the 13 provinces they were drawn from. However, by 1997 or 2000 it may well be that IFLS is no longer representative of the population residing in the 13 provinces where IFLS is drawn. To examine this, we compare sample characteristics of IFLS2 and 3 with the nationally representative SUSENAS core surveys from the same years, 1997 and 2000. The SUSENAS Core surveys are national in scope, probabilistic surveys fielded by BPS, the national statistical agency, and usually contain up to 150,000 households. We use the individual population weights reported in SUSENAS for the comparisons based on individuals and household-level weights for household comparisons. In doing so, we only use data from the same 13 provinces that IFLS covers. For IFLS2 we report both weighted and unweighted proportions. For IFLS3 we only report unweighted proportions since we do not yet have weights calculated.

Appendix 1 Table 1 and Appendix 1 Figures 1-3 show some basic individual comparisons. Relative proportions by gender are identical for the weighted IFLS2 and the 1997 SUSENAS, however the unweighted IFLS2 has slightly more females. The same holds true for the unweighted IFLS3 compared to the 2000 SUSENAS, but presumably after weighting, these proportions will match up. Looking at the age/sex distributions, the percent urban/rural and the percents by province, we can see that the weighted IFLS2 and the 1997 SUSENAS are again very, very close; in Appendix 1 Figure 1 the cumulative distribution functions (cdf's) are virtually on top of each other. The unweighted IFLS2 distribution is somewhat different from its weighted counterpart. The unweighted data show a slightly higher proportion of elderly, and slightly lower proportions of middle aged population (see Appendix 1 Figure 2). More importantly, the unweighted proportions are distinctly higher in urban areas, which reflects the oversampling that took place in urban areas. Also the proportions in provinces outside of Java have higher representation in the unweighted IFLS2 than in the weighted, or in SUSENAS. The IFLS2 weights take care of these discrepancies.

Comparing the 2000 SUSENAS with the unweighted IFLS3, we can see some small differences in the age distribution such as a slightly higher fraction of children under 5 years and elderly over 60 years in IFLS3, but slightly smaller fractions of prime-aged adults (Appendix 1 Figure 3). We can see that the fraction of population that is urban grew substantially, by five percentage points, in SUSENAS, but only barely in IFLS. The provincial distributions did not change much in either SUSENAS or IFLS.

One factor important for analyzing children's outcomes, is education of parents and other adults in the household. Appendix 1 Table 2 compares levels of schooling for adult men and women aver 20 years and by urban and rural residence. The weighted IFLS2 shows a slightly higher fraction than

SUSENAS with no schooling and less than primary, while SUSENAS has a commensurately higher fractions reporting completed primary and junior high school. The fractions who report completing high school or higher are close. Most of the differences in reported schooling turn out to be among rural residents. These differences between the 1997 SUSENAS and IFLS increase a little when the unweighted IFLS is compared. For this comparison, both tails are fatter in IFLS than in SUSENAS, and that is also the case in 2000.

In Appendix 1 Table 3 we report various household characteristics. Average household size is smaller in the 1997 SUSENAS compared to both the weighted and unweighted IFLS2, and likewise compared to IFLS3 in 2000. The average age of the household head is slightly higher in IFLS2 than the 1997 SUSENAS, although in 2000 the ages are virtually identical between the two sources. Comparisons of schooling of the household head is very similar to schooling comparisons for all individuals. Likewise for urban/rural location. Finally, a larger fraction of heads are reported to be women in IFLS.

Since IFLS3 weights have not yet been calculated, results in this paper must use unweighted data in order maintain comparability between waves. However, using unweighted data then raises the potential that some differences between IFLS2 and 3 that we see, may not hold once the data are weighted. That caveat must be born in mind when interpreting these results.

3. Children in Poverty

A child is deemed to be living in poverty if the real percapita expenditure (pce) of the household that they live in is under the poverty line. Obviously this assumes that distribution is equal across individuals within households, which we know is not the case, so our results must be treated with some caution. Assignment of poverty status requires data on real percapita expenditure (pce) and on poverty lines. We construct our own measures of pce and use existing data on poverty lines. We will now describe these measures in detail.

PCE is calculated using all consumption expenditures, including durables, as it was in Frankenberg, Thomas and Beegle (1999).[10] We create our own deflators using disaggregated consumption value indices at the 5-digit level, computed by BPS, separate for urban and rural areas.[11] In

[10] Housing rental expenditures for owner/occupiers is taken from a question that asks the respondent, usually the head male, to estimate the market rental value of the house. Of course in areas in which rental markets are thin, it is not clear how well this will be done. On the other hand, estimating a housing rental value using hedonic regression techniques with a possibly very small sample of renters is unlikely to be better.

[11] These consumption value indices are the current month values of a baseline quantity level. The urban indices use baseline quantities taken from a 1996 consumer expenditure survey done specially to calculate weights for the cpi. This survey is fielded once a decade. The rural baseline quantities are taken from the 1993 SUSENAS consumption module. These consumption value indices can be aggregated to any level desired, and then ratios taken across different months to obtain a percent increase in price, or group price.

the case of urban areas, BPS collects and reports price information monthly in 43 cities. For rural areas, prices are collected monthly at the district level, but reported at the province level.

We form Tornquist indices separately for urban and rural prices, using consumption shares from the 1996 and 1999 SUSENAS consumption modules as weights for the price increases from the CPI data.[12][13] Using SUSENAS share weights has an advantage over BPS procedures, at least for their urban price indices, because in calculating mean urban shares, BPS weights household shares using weights formed from total household expenditure, not from household size.[14] This results in rich households getting a very high weight compared to poor households, which would not be the case if household size was used instead (Deaton and Grosh, 2000, note that this is a common problem in many countries). The particular problem this causes in Indonesia over this time period is that the food share BPS uses is very low, 38% on average over all urban areas, compared to a share of 55% found in the 1996 SUSENAS module (both shares being from the same year!). Coupled with this, is the further fact that food price inflation was higher over the period 1997-2000 than nonfood inflation, so that a lower food share will understate inflation, and thus overstate real income growth over this period.[15]

We apply the price deflators to household pce's to calculate real values using December 2000 as the base. Urban households are assigned a cpi for the nearest city from the list of 43 (there is at least one

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In the BPS rural price index series, housing rental is not covered, although it is in the urban price index. Rather than drop housing from the cpi calculations, we assume that the percent change in the consumption value indices for rural housing within a province is equal to the average percent change in cities within that province. We then weight these by the province *rural* housing shares when forming the rural price indices.

[12] The Tornquist formula applied to our case is:

$$\log cpi_T = \sum_i 0.5(w_{i,1999} + w_{i,1996}) * \log(p_{i,1} / p_{i,0})$$

where $w_{i,1999}$ is the budget share of commodity i in 1999, taken from SUSENAS; $w_{i,1996}$ is the budget share in the base period, 1996; $p_{i,1}$ and $p_{i,0}$ are the prices of commodity I in periods 1 and 0 (in our case period 1 will correspond to Dec 2000 and period 0 to the month and year of interview of the household). The Tornquist index allows for the fact that households will substitute away from expensive items towards cheaper ones as relative prices change. This substitution will mitigate the welfare impact of price changes and should in principle be accounted for in a cost of living index. Other indices such as Laspeyres do not account for such substitution.

[13] Doing so required that we match a list of commodities from the urban price indices to separate lists from both the 1996 and 1999 SUSENAS (the two SUSENAS' have different commodity code numbers) and conduct an analogous procedure for the rural price indices. Correspondences worked out by Kai Kaiser, Tubagus Choesni and Jack Molyneaux (Kaiser, Choesni, Gertler, Levine and Molyneaux, 2001) proved very valuable in helping us do this, although we re-did the exercise and made a number of changes.

Other studies have used the quantities in the SUSENAS' to form unit prices (see, for example, Deaton and Tarozzi, 2000). For us this is not appropriate since we need prices deflators for months and years not covered by the SUSENAS. IFLS is not a good source for prices for the purpose of constructing cpi's. Unit prices are not available in the household expenditure module because quantities are not collected. While some prices are collected from local markets, not enough are available to construct defensible cpi's.

[14] For rural shares it is not clear whether expenditure-based or population-based weights were used by BPS.

[15] On the other hand, the BPS consumer expenditure survey collects expenditures for a far more disaggregated commodity list than does the SUSENAS module (which is the longer form of the two SUSENAS consumption surveys). It is especially more detailed on the nonfood side. Having less detail on nonfoods is thought to lead to serious underestimates of nonfood consumption and thus an overstatement of food shares (Deaton and Grosh, 2000).

city per province) and rural households are assigned a cpi based on their province of residence. We do not attempt to account for between province and urban/rural cost of living differences in calculating real pce, however we do use different poverty lines for each province-urban/rural combination.

Poverty lines in Indonesia are controversial. BPS calculates poverty lines that are designed to reflect the food expenditure required by someone who is poor, in order to purchase a diet consisting of 2100 calories per day, plus an allowance for nonfood expenditures above that. Ravallion and Bindani (1994) among others have argued that the urban/rural gaps in the BPS poverty lines, nearly 25%, are too large compared to real cost of living differences. They, and other analysts, have suggested alternative poverty lines.

We follow a recent study by Pradhan, Suryahadi, Sumarto and Pritchett (2000), which suggests a set of province by rural/urban poverty lines based on the 1999 SUSENAS module. They use a fixed national food basket that will generate a calorie intake of 2100 per person per day, and price that basket using regional prices, making adjustments for the fact that richer households will shift into more expensive sources of calories. Their poverty lines have the advantage that the urban-rural differential in the value of the lines is only approximately 11%, in contrast to the BPS derived lines. These lines are then converted to December 2000 values using our deflators (see Appendix 1 Table 4).[16]

We calculate poverty headcounts at the individual level for all individuals, and separately for children under age 15, and break down the later group into by 0-59 months and 5-14 years. In Table 1 we include all individuals found living in the interviewed households, whether or not the persons were selected to be interviewed individually (see the discussion of selected individuals, in Section 2). The 1997 headcount measure is 16.7%, close to 15.7 reported by Pradhan, Suryahadi, Sumarto and Pritchett (2000) for February 1996. Not surprisingly, poverty rates for children are higher than for the aggregate population, since poorer households tend to have more children than do the nonpoor. The difference in this case is high, 20.1% of all children and 21.5% of children under 5 years were poor in late 1997. Poverty rates are roughly twice as high in rural areas as urban: 24.4% in rural areas for children 0-14, as against 14.3% in urban areas in 1997.

What is perhaps surprising is that the headcount measures actually decreased slightly by late 2000, to 15.2% for all individuals, and to 18.8% for children. The biggest decline occurred for children under 5 years, with essentially no change for children 5-14 years. Comparing this to other studies is difficult because of differences in methods used to construct deflators and differences in poverty lines. Pradhan, Suryahadi, Sumarto and Pritchett (2000) compute a headcount of all individuals, of 15.7% in February 1996 using their constructed poverty line that we also use, which rises to 27.1% by February

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[16] Arguably one might want to use shares based on spending patterns of the poor to deflate a poverty line. We ignore this issue.

1999. Frankenberg, Thomas and Beegle (1999), using the older BPS poverty line as their anchor, estimated poverty at 11% in late 1997 (using IFLS2) rising to 19.9% by late 1998 (using IFLS2+). Those two studies use different sets of poverty lines, which give them different anchors, but in both cases the rise in the headcount is similar, around 10 percentage points. Other studies reported by Suryahadi, Sumarto, Suharso and Pritchett (2000) show a fall in poverty rates by as much as 5 percentage points (or half of the increase) from February to August 1999 (in August 1999 there was a smaller, or mini-SUSENAS survey fielded which is the source of data for these estimates).[17] The estimated sharp increase in poverty until February 1999 and then a decline through August is consistent with the movements in the food price index over the same period, shown in Figure 2.

Thus there exists other evidence that is consistent both with a sharp rise in poverty followed by a fall in rates, at least through August 1999. In addition, as mentioned in the introduction, aggregate growth did renew slowly in 2000, at 4.5%, which may have resulted in a further fall in poverty. Thus these data are not inconsistent with what is known from other studies. Still, one must be careful when interpreting these data, since we only can report at two points in time and we are thus unable to track the time series.

In addition, comparing the years 1997 and 2000 alone, as we do in this paper, may not provide the best measure of the impact of the crisis. Rather one should compare the 2000 results with the level of poverty that would have been expected in 2000 had the crisis not occurred (Smith, Thomas, Frankenberg, Beegle and Teruel, 2002, analyze changes in wages and employment from 1993 to 1998 using this approach). To do this requires including pre-crisis years, using IFLS1, in the analysis and is left to future work.

One key factor that is driving the small improvement in overall and child poverty rates in the IFLS sample is the spitting off of households. Table 2 shows 2000 levels of poverty among individuals living in the subset of new splitoff households in 2000 that can be matched to their origin households in 1997, as compared to 1997 poverty rates of the people who lived in those 1997 origin households.[18] Poverty rates in 2000 in these splitoff households are far lower than they were in their 1997 origin households.[19] For children under 5 years the rates are lower by half! On the other hand, poverty in 1997 in the households that these splitoff individuals come from is a good deal higher than poverty overall in 1997. Evidently there are forces pushing out younger, better educated youth from their poor origin households into new households in which their real pce is higher (see Witoelar, 2002, who tests whether

[17] A study of poverty rates among farmers between 1995 and 1999 shows a decline during that period (Gilligan, Jacoby and Quizon, 2000).
[18] 1,839 out of the 2,645 new splitoff households in 2000 can be matched, out of which 1,060 have children.
[19] Non-splitoff households that can be matched from 1997 and 2000 exhibit constant poverty rates.

these splitoff and origin households should be treated as one extended household, rejecting that hypothesis). Clearly this pattern needs to be examined more closely in future work.

Means and medians of real percapita expenditure (pce) for the households of all individuals and of childen are reported in Table 3. As one can observe, median pce's increased by a small amount for IFLS respondents, but mean pce's fell. The reason for the fall in the mean is a large downwards shift in the upper tail of the pce distribution, especially in urban areas, where mean pce fell by 15%. This is very similar to the result observed by Frankenberg, Thomas and Beegle (1999) for the change between 1997 and 1998. What is different here is that the lower and middle parts of the distribution have improved relative to 1998.

We can observe the entire distribution in Figure 3, where we plot the poverty incidence curves for IFLS children in 1997 and 2000, and to compare, for all IFLS individuals. The poverty incidence curves are just the cumulative distribution functions for poverty (Ravallion, 1994). They have the advantage of showing the entire distribution of real pce and not being tied down to a particular poverty line, or set of lines. One can see that at low and moderate levels of pce, the 2000 curves lies below the 1997 curves. For children, there is a crossing point at almost 435 thousand rupiah, above which the 1997 curve lies below. For all individuals the crossing point is at a higher value, 525 thousand rupiah.

In Figure 4 we magnify the lower and middle parts of the distributions, by plotting just those parts. We can see more clearly now that the 2000 distribution lies below that for 1997, suggesting that children have less income poverty in 2000. The province-urban/rural poverty lines in December 2000 values range from Rp 75,000 in rural Central Java, to nearly Rp 108,000 in Jakarta. Hence it is of particular interest to examine the distributions for possible stochastic dominance in the range, say from below those values up to Rp 150,000, to provide a figure that is likely to be above the maximum poverty line that anyone might consider.

Following the poverty literature (for instance, Atkinson, 1987), we can examine whether one curve first order stochastically dominates the other at points below some maximum plausible poverty line, say Rp150,000 in our case, in the sense of one curve lying completely below the other at all points less than that cutoff.[20] In this case one can say that if a poverty line is chosen at *any value* at or below Rp150,000, that the headcount measure of poverty will be lower for the distribution that lies beneath the other at all points less than Rp150,000. If the CDFs cross in this range one can also check for higher order stochastic dominance.

[20] We also use a lower cutoff point of 40,000 rupiah, which corresponds to approximately the 1st percentile, in order to remove any influence of outliers.

Of course observing one distribution to stochastically dominate another is not yet testing the differences statistically. Several methods exist in the literature to do this. The Kolmorgorov-Smirnov test examines the maximum distance between two distributions, but has notoriously low statistical power, and what power it does have is greatest in the center of the distribution, whereas for our purposes we are most interested in the lower tail.

Recently Davidson and Duclos (2000) have derived under general conditions, the asymptotic distributions (which turn out to be Gaussian) for testing stochastic dominance of orders 1, 2 and 3 between two distributions. There are at least two distinct ways one can go about this using their results. If the two curves cross at least once, Davidson and Duclos derive the asymptotic distribution for the crossing points. With this, one can calculate a standard error for the crossing point and compute the lower end point of a confidence interval around that point. If the first crossing point is above the threshold, then if the point of two standard errors beneath the first crossing point is still above the threshold (or above some plausible "maximum" level of the threshold) then one could conclude with 97.5% confidence that there is first order stochastic dominance below the threshold. As we shall see, in some cases it turns out to be possible to make such a statement. If, however, the point of 2 standard errors below the first crossing point is less than the threshold, then one would conclude that it is not possible to reject non-dominance below the threshold.

If the two distributions do not cross, then obviously one cannot employ the strategy outlined above. In this case the Davidson-Duclos results suffer a disadvantage, but still can be used. They provide the asymptotic distributions needed to calculate the standard errors for the vertical difference between the two curves (CDFs if we are examining first order stochastic dominance) at any point in the distribution. If the differences between the curve vertical ordinates are significant at every point beneath the threshold (or the maximum plausible threshold), then one could conclude that the curve underneath dominates the curve above. The problem, of course, is that there are an infinite number of points to test. Nonetheless, they advocate testing at many points in the relevant range and if one can reject equality of the distributions at all points, then to conclude that the lower one dominates. While this strategy is not perfect, it seems better than not testing at all, and so we employ it.[21]

Table 4 presents these test results for children and all individuals. The crossing point of 435 thousand rupiah has a standard error of just over 33,000 rupiah, so that two standard errors less than the crossing point is still far above any reasonable poverty line. This suggests first order dominance by the 2000 distribution in the relevant range. Hence taking a single poverty line, at any value it might be set

[21] Duclos distributes a program titled Distributive Analysis/Analyse Distributive (DAD), which can make these, and many other, poverty and inequality-related calculations. See Duclos, Abdelkrim and Fortin (2001) at www.ecn.ulaval.ca/~jyves.

less than Rp150,000, poverty would be lower in 2000 than in 1997. Tests of differences in the ordinates at different levels of pce also reveal that the 2000 distribution first order dominates the 1997 distribution in the range tested, from 40,000 to 150,000 rupiah. When the same tests are done using data on all individuals, not just children, the same result is found.[22]

The results so far are aggregated across urban/rural area and province. To get an idea of how child poverty in 1997 and 2000 varies over these, and other, groups, we estimate a linear probability model (that is an OLS regression) of a binary indicator of the household being in poverty, pooling the years. We include dummy variables for province, with Jakarta as the base province, and another for rural areas. We include a linear spline for child age in months, allowing for a different linear slopes for ages between birth and 59 months and over 59 months, requiring the line segments to join at the dividing point. We also add controls for years of education of the mother and the father (with additional controls for the few cases in which mother or father education information is missing). All covariates are interacted with a year 2000 dummy variable.

The results are reported in Table 5. Columns 1 and 3 present the coefficients for 1997, while the 2nd and 4th columns show the *change* in each coefficient for 2000. As is expected, higher schooling of both parents lowers the probability that a child will be in poverty in both years. The difference in the probability of being in poverty for those with a mother with completed primary and those with a mother with no education is about 8 percentage points. If both parents have 6 versus 0 years, the probability of being in poverty declines by almost 15 percentage points. These effects are much the same in 2000 as in 1997. These are large effects given the mean rates we see in Table 1. Not surprisingly living in a rural area raises the likelihood of being poor by 4.5 to 5 percentage points. Also child poverty was higher in 1997 in South Sumatra, Lampung, East Java, Bali, and South Sulawesi, compared to Jakarta. By 2000, relative rates of child poverty had declined in some of these provinces, but vastly increased in West Nusa Tengarra.

Finally, one issue that we can examine in IFLS that cannot be analyzed with SUSENAS, or other repeated cross section data, is to look at the change in poverty status of individuals. Table 6 presents a simple poverty transition matrix using those children 14 years and under in 2000, who were in both IFLS2 and 3. The results exhibit substantial movement in and out of poverty. Roughly half of those children in poverty in 1997 left poverty by 2000. On the other hand, an almost equal number of children entered poverty in 2000, some 12.4% of those not in poverty in 1997. It is well known that poverty rates vary over time and that flows into and out of poverty are high (see for instance Baulch and Hoddinott, 2000), this evidence is further demonstration of that fact.

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[22] When separate distributions are calculated for urban and rural residents, the tests reject non-dominance for rural areas, but not for urban.

In Table 7 we build on Table 6 by estimating a multinomial regression model of poverty transition for children, using the same sample as in the transition matrix. We define four categories: being in poverty in both years (the base), in poverty in 1997 but not in 2000, in poverty in 2000 but not in 1997, and not in poverty either year. Mother's and father's education have positive, significant effects in keeping children out of poverty; with a larger effect for being nonpoor in both years, relative to being in poverty in both years. The impacts of parental schooling on the transition from poverty in 2000 to nonpoverty in 1997 are quite similar to the impacts on the transition from poverty in 1997 to nonpoverty in 2000. Apparently then, it is the number of years out of two that a child is in poverty that matters for the size of the parental schooling effects; with impacts being greatest for being nonpoor in both years. Among the regional effects, living in South Sumatra, East Java, West Nusa Tengarra and South Sulawesi makes it more likely that a child is in poverty in both years relative to being poor in neither, as compared to children living in Jakarta. The same is true for children living in a rural area compared to children in urban areas.

4. Child Health Outcomes

Welfare consists of much more than pce or poverty. In the rest of this paper we focus on health as one key part of child welfare. This has the advantage that there are not controversies about which price deflator to use, or which poverty line (although as we shall see there are health "thresholds" that we will employ in part of the analysis, and they have an arbitrariness about them just as do poverty lines).

Health is multidimensional and IFLS contains a very rich array of data on many health outcomes, some physical health measures and some either self-reported or reported typically by a parent. Self and proxy reports have known problems of systematic misreporting (see for example Strauss and Thomas, 1995, for a discussion), although the biases are different for different measures and may vary in different surveys and countries. Not having systematic measurement error is an advantage of the physical health measures we report.

In this paper we use data on age and sex standardized child heights and weight for height,[23] blood hemoglobin levels,[24] plus self- or parent- reported general health, and health as reported by one of the two nurses on the interviewing team that took the physical health measures. We stratify all tables and figures by gender and age. For the self- or parent- reported measures we distinguish age groups 0-59 months and

[23] Heights were taken by trained nurses, 2 per field team, using wood child/adult height boards made by Irwin Shorr. Weights were measured using electronic mother/child scales, model 881, made by Seca. Heights are measured to the nearest millimeter and weights to the nearest tenth of a kilogram.
[24] Finger pricks were taken by one of the trained nurses on the team. HEMOCUE was used to measure the blood hemoglobin level. Hemoglobin levels are measured to the nearest g/dL.

5 years to 14. For height, weight for height and hemoglobin, it is important to stratify more finely by age. We differentiate by age in months using as our groups: 3-17, 18-35, and 36-59. We also report a small number of findings for adults, because it is difficult to gage what happens to children over this period without also looking at how adults fared.

For standardized heights and weights for height, we report z-scores, using the World Health Organization (WHO) and the US Centers for Disease Control (CDC) standard.[25] In the tables, we report means and standard deviations, plus we also report fractions below certain thresholds. As in virtually all of the anthropometric literature, we use –2.0 as the cutoff for standardized height and weight for height. For hemoglobin the standards used here are those of CDC (CDC, 1998), except for the threshold for adult women, for which we use 11.5 as our cutoff, the threshold used by the Health Ministry in Indonesia (12.0 is the cutoff used by CDC).

The thresholds used do not necessarily have scientific backing by studies showing that children below the cutoffs face a markedly higher risk of certain negative functional consequences. Much is still unknown about the consequences, particularly socio-economic consequences, of being below these thresholds. In this sense the thresholds have some arbitrariness to them, much as do poverty lines. For instance, the CDC cutoffs for hemoglobin levels are based on the 5th percentile from NHANES III (CDC, 1998). There does not seem to be a strong scientific justification for choosing this particular percentile. For this reason, examining the entire distribution of outcomes makes more sense than looking only at fractions below an arbitrary cutoff point.

For each age/sex group, we compare the cumulative distribution functions (CDFs) for 1997 and 2000. This way we can observe the entire distribution. As is the case for real pce, if we do choose to take the thresholds seriously, we can examine whether one curve first order stochastically dominates the other at points below the threshold, in the sense of one curve lying completely below the other at all points less than the cutoff. We can be more agnostic about the cutoff level by asking whether one curve first order dominates the other at points below or at points that lie somewhat above the threshold. We again use the Davidson and Duclos results to test for differences between the curves in the relevant ranges.

[25] A z-score for height subtracts from the child's height, the median height in the reference population, for a child of the same sex and age in months, and divides by the standard deviation of height in the reference population, also for a child of the same sex and age in months. A weight for height z-score is defined in an analogous manner, except that the standardization is done using the reference population median and standard deviation of weight for children of a given sex and height. The WHO-CDC standards use a US reference population.

Height for age

We begin by looking at standardized child height for age. Child height has for the last 25 years been viewed as a very useful summary indicator of child health (Martorell and Habicht, 1986). It is a stock measure that reflects all of the health events since birth. It may not be immediately responsive to sudden events, such as an economic crisis, but may well respond over time, particularly if the shock is large. In late 2000 it had been nearly three years since the onset of the crisis in Indonesia, long enough perhaps to see crisis impacts if there were any. On the other hand in late 1998, when IFLS2+ was in the field, may have been too early to pick up impacts on height for age. Indeed, Frankenberg, Thomas and Beegle (1999) find none.

We start in Figure 5 by showing the pattern between mean height for age z-scores and child age in months, for boys and girls aged 3-108 months in both 1997 and 2000.[26][27] We see the typical age pattern for cross-sections in low income countries (see Martorell and Habicht), that the z-scores begin to decline at 3 months, faster at first and then slowing until the z-scores bottom, for 36 month old children in our sample.[28] This decline, which varies by socio-economic factors, is widely attributed to the introduction of water and solid foods into the diet, which will tend to introduce impurities such as bacteria into the child's digestive system, inducing illness (Martorell and Habicht). It is clear from this figure, that mean z-scores in 2000 are higher than in 1997 for both boys and girls and across the age distribution.

This pattern is mirrored in Table 8, which reports means and the percent at or below –2.0 for ages 3-17, 18-35 and 36-59 months. There is a clear increase in mean z-scores, in most cases statistically significant, and declines in the fraction with z-scores less than or equal to –2.0 (called stunting), significant for 2 out of the three age groups for boys and for the youngest girls. This pattern shows a clear improvement in child health.

One must be careful, however, not to lose the forest for the trees. While there is a clear improvement in means and the fraction less than the threshold, stunting, the degree of improvement may be less that what would have occurred absent the crisis. Furthermore, the *levels* of stunting are high, in 1997, being in the mid-40 percent range, declining to the high 30 percent range in 2000. In sub-Saharan Africa by comparison, stunting levels are in the 30 to mid-40 percent range for many countries according to data from the WHO Global Database on Child Growth and Malnutrition, although in south Asia levels are higher. Thus even with a strong decline in stunting, levels are still high in the IFLS sample.

[26] We omit infants less than 3 months because it is usual that measurement error is higher for them, because, for example, it is difficult to completely flatten and straighten their legs.
[27] These and our other bivariate nonparametric figures are estimated using locally weighted smoothed scatterplots (LOWESS), with a bandwidth of .8.
[28] Of course any cohort and time effects, if they exist, are also embodied in this pattern.

Figure 5 displays smoothed means at different ages, but our interest is more in what is occurring at the bottom of the distribution. Did the z-scores at the bottom of the height distribution decline during the crisis? To examine that question we display the CDF's for 1997 and 2000 and look for stochastic dominance below –1.0. It is clear from Figure 5 that the mean of z-scores is changing over age, hence it seems better to disaggregate child age when presenting the CDF's, into more homogeneous age groups. We use 3-17 months, 18-35 months and 36-59 months. The first group corresponds to ages over which mean z-scores are declining rapidly, the second to ages over which the z-scores are declining, but more slowly, and the third to an age group over which z-scores have stabilized.

Figures 6-8 show the results. For the 3-17 month group the CDF's do cross for both boys and girls, but the crossing points are well above –2.0. Below and somewhat above –2, the 2000 CDF lies completely below the 1997 CDF indicating that for any threshold point in this range, a smaller fraction of children are stunted in 2000 than in 1997. Using Davidson and Duclos' derivation we can calculate the standard errors for these crossing points and as well test for significance of the vertical distances between the two CDF's. Table 9 shows these results. For boys aged 3-17 months, taking two standard errors less than the crossing point, -0.82, we obtain –1.59. That is above –2.0 so one might conclude with 97.5% confidence (a one-sided confidence interval seems appropriate in this case), that there is first order dominance of the 2000 distribution below the threshold, -2.0. Testing for differences between the curves also shows significant differences at many, though not all, points chosen. This could be taken that the distributions are not different at a 5% level. On the other hand, tests for second order stochastic dominance in the same way does show significant differences at all points tested. So the statistical evidence, perhaps while not absolutely clear, seems pretty strong that there is dominance, at least second order and arguably first order, for young boys. For girls 3-17 months the pattern is almost the same as for boys.

For the 18-35 month group, again there is a crossing of the 1997 and 2000 distributions for both boys and girls (see Figure 7). Two standard errors less than the crossing point is above –2.0 for boys (Table 9), but below for girls, indicating first order dominance in the relevant range for boys but not for girls. Points tested below –2.0 also show significant differences at 5% for boys, although at points just above –2.0, this is not the case. For girls, there appears to be 2nd order dominance in 2000.

At the older toddler ages of 36-59 months, there are no crossings, the 2000 curves lie completely underneath the 1997 curves (Figure 8). For boys at all points tested the 2000 curve is significantly different from the 1997 curve at 5%, although not for girls.

Now one potential reason why this dimension of child health may have improved over this crisis period is that the comparison base of late1997 was in fact a crisis period in rural areas, because of a major drought and because of serious smoke from forest fires in Sumatra and Kalimantan. Sastry (2002) has shown that these fires are responsible for higher infant mortality rates in Malaysia during that period. It may be that these difficulties resulted in lower child heights as well. If that explanation is the case then we might expect to see improvements in 2000 largely in rural areas. However in Appendix 2 Figures 1-3, it can be seen that this is not the case.[29] For infant girls 3-17 months the shift downwards in the distribution seems about the same for urban and rural areas, and for older groups of girls the shift is if anything more pronounced in urban areas.

Another potential explanation for the improvement has to do with birth and/or mortality selection. Suppose that poor households decided to delay childbirth in the face of the crisis, and that their children would have been in the lower tail of the height for age distribution. Then one would observe an improvement of the lower tail of the distribution, as we do, but the improvement would not have been caused by an improvement in living standards, rather the reverse. Such a demographic response to a sharp economic decline has been observed in several African countries for example (see National Research Council, 1993). However, it is not enough that families delay childbirths for this explanation to be valid. Rather it must be that those who delay are the families whose children would have been in poor health. In contrast, it might be that it is the higher income urban households who delayed childbirth, and their children would have been in good health. In that case we would be understating the improvement in the upper tail of the distribution. The fact that the height distribution improved for children 36-59 months as well as for younger children argues against the birth selection story as those children would have already been born by late 1997.

A related explanation has to do with the possibility that infant mortality rose during the crisis and that it was the more frail infants who died, thus improving the lower tail of the distribution of heights among the living. The fact, as we shall see, that the shifts in the weight for height distributions are quite different from what we see for heights also weakly suggests that both birth and mortality selection stories may not be the principle ones responsible for the pattern of results observed. Still, these are avenues open to future research.

We explore the differences in levels and changes in child height for age z-scores by regressing the z-score for boys and girls aged 3-59 months on a similar set of covariates to those we used when looking at poverty, again pooling the 1997 and 2000 data. Guided by Figure 5, we include a linear spline for child age in months, allowing for different linear slopes between 3 and 17, 18 and 35 and 36 and 59 months. In addition to controls for years of education of the mother and the father, we want to examine the impact of the household being in poverty in 1997 on child height, both in 1997 and in 2000. To do so, we include a

[29] To save space, we show the figures for girls only; the figures for boys show a very similar pattern.

dummy variable indicating the household's poverty status in 1997. This variable will allow us to say something about whether any change is concentrated among those initially poor or among the nonpoor.[30] In results not shown here, we also report the log of real pce as a continuous variable, allowing different impacts when pce is less than the specific province-rural/urban poverty line and when it is above.

Table 10 presents the results; we focus on the 1997 coefficients first. Not surprisingly, children in rural areas have lower z-scores, by an average of almost .4 less for boys and .3 less for girls. Children in provinces other than Jakarta tend to be shorter than ones in Jakarta, with very pronounced differences for children in West Nusa Tangarra, and secondarily in North Sumatra, South Sumatra, Lampung, and West Java for boys and in addition, West Sumatra for girls. Higher schooling for mothers is associated with higher child z-scores, particularly so for girls. Father's education has less impact on girls, but more on boys, similar to results found by Thomas (1994) in Brazil, Ghana and the US. Being from a poor household in 1997 also is associated with lower z-scores, especially for girls.[31]

When we examine how coefficients change for 2000, we see for girls, that an F-test of the hypothesis that there were no changes cannot be rejected for girls, although for boys it can at 5%. For boys, no individual change coefficient is significant, however, there is a pattern in the coefficient magnitudes, of relative improvement in the regions where child z-scores lagged behind Jakarta. This is especially pronounced for West Java and is observed for girls as well as boys. This suggests that the improvement seen in the figures, in the distribution of child heights may be particularly concentrated in West Java. In Jakarta itself, there was an insignificant worsening of z-scores in 2000 for boys and an improvement for girls. It is interesting to note that there was little change in the impact of being from a household in poverty in 1997. That suggests that changes in the distribution of height for age were independent of initial poverty status.

Weight for height

Weight for height is widely thought to be a more responsive measure of child health to shocks in the very short-run (see for example, Foster, 1995). Frankenberg, Thomas and Beegle (1999) found that while no major differences were apparent between mean z-scores in 1997 and 1998, that for very young children there was an indication of a decline in weight for height. However their sample sizes were too small to detect statistically significant differences.

[30] We matched individuals in 2000 to the households they were in, in 1997. If the child was not present in 1997, perhaps it had not been born, we matched it to the 1997 household of the mother, and then the father if we could not match based on the mother. We include a control for not being able to match a 2000 child with a 1997 household and one if pce does not exist for the 1997 household (there were a few cases of households with incomplete expenditure data). These variables have coefficients near zero and not close to significance.

[31] Using log pce, we find that it is only for nonpoor households that log pce matters.

Figure 9 shows the mean z-scores by age in months, for girls and boys, similar to Figure 5 for height. The same relationship appears, z-scores first declining at 3 months and then stabilizing by 36 months. For boys the 2 distributions are on top of each other, there are effectively no differences. For girls, however, there does seem to be a worsening of z-scores in the first 2 and one half years of life.

Table 11 shows that the mean z-scores decline in 2000 for girls in the 3-17 and 18-36 month age groups, with significance at near the 5% level. For the fractions below –2.0, however, while they rise for these age groups, the change is not close to significance at even 10%. Nevertheless, as is true for height, the fraction of children less than the threshold, –2.0, is high, at or over 10% for children under 36 months. This level of waisting is at or higher than levels in sub-Saharan Africa, although not as high as in south Asia (WHO Global Database on Child Growth and Malnutrition), usually considered the part of the world where waisting is most prevalent.

Figures 10-12 plot the CDF's for the 3 age groups 3-17, 18-35 and 36-59 months. Similar to Figure 9, for boys 3-17 months there seem to be very little difference in the distributions, there are several crossings, before and just after –2.0. For girls 3-17 months, the 1997 distribution is below the 2000 curve at and below –2.0 indicating a worsening in 2000 for the bottom tail of the distribution. This worsening is reversed for girls aged 36-59 months and is not apparent for the 18-35 month group. Thus it is just for the very youngest girls that this negative impact in 2000 appears.

Table 12 shows the Davidson-Duclos tests of significance between these curves. Note that the standard error on the first crossing point for 3-17 month girls is large, 1.87, so that 2 standard errors below the first crossing point is –3.03, well below –2.0. Furthermore, direct tests of distances between the distributions also show high standard errors relative to the differences. The 1997 distribution cannot even be said to dominate at order 2.

Table 13 presents descriptive regression results for child weight for height z-scores using the same specification we used for height for age. As is typical, the explanatory power is considerably lower for weight for height than it is for height. Unlike for height, there are no significant differences between children in rural and urban areas. Boys in many of the provinces outside of Jakarta tend to be larger than boys in Jakarta, although this is not so for girls, and many of these differences are lost though by 2000. Unlike for height, mother's education has an impact on boys, but not on girls and father's education has a negative association with weight for height z-scores. Being in poverty in 1997 lowers z-scores for boys, but not for girls. Even the boy effect goes away in 2000.

In summary, while there is some evidence suggesting that very young girls may be doing worse in 2000 in terms of their weight for height, it is only for that group, and the differences are not statistically significant. Yet, as we saw above, all age/gender groups did have a significant improvement in their height for age distribution between 1997 and 2000.

Blood hemoglobin

Blood hemoglobin levels are of interest because low levels *may* indicate problems of iron anemia, which can have various negative functional consequences. However hemoglobin levels may also be low if a person has an infection, or for other reasons. Thus by itself, blood hemoglobin is not enough to demonstrate anemia. Table 14 shows levels and changes in mean hemoglobin levels and fractions of children below commonly used thresholds.[32] The first point to note is that mean levels are very low and fractions below the thresholds very high (remember that these thresholds are at approximately the 5th percentile in the US distribution). There clearly has been a worsening of low hemoglobin levels for children under 5 years, although not for older children.

The CDF's, shown in Figures 13-14 are consistent, showing some worsening in 2000 for 12-59 month olds, but not for older children. However, there is some ambiguity even for the 12-59 month group, since the distributions cross below the thresholds for both boys and girls. Tests using the Davidson-Duclos asymptotic distributions are not clearcut, as Table 15 demonstrates. At very low levels the 1997 and 200 distributions are not significantly different. As one gets closer to the thresholds, from below, the differences become significant.

Table 16 presents our descriptive regressions, pooling the two age groups. Mother's education is associated with higher blood hemoglobin levels and household poverty in 1997 with lower levels. Interestingly, the impact of mother's education is eliminated in 2000 for reasons that are unclear. Being from a poor household in 1997 has a more negative effect in 2000 for boys, but for girls the impact is eliminated in 2000. There don't seem to be strong province effects for boys, although there are for girls in 1997, with girls living in Jakarta having lower hemoglobin levels. Much of these provincial differences seem to disappear by 2000.

Self- and parent-reported child health measures

Other health measures were collected on children. Usually this information was asked of one of the parents (sometimes from another proxy respondent), although older children sometimes answered themselves. Here we use a standard general health question, which we categorize into poor health or worse. In addition, as discussed above, a trained nurse assessed the child's health on an ordinal scale of

[32] Children under 12 months did not have their blood samples taken.

1-9, nine being the best health. We look at the proportion with scores less than or equal to 5 as an indicator of poor health. We use 5 or below as a threshold since the fractions less than or equal to 4 are quite small. We stratify our ages in this case by 0-59 months and 5-14 years, and as usual all results are stratified by gender.

Table 17 indicates that for most of these indicators, there was a worsening between 1997 and 2000 for both boys and girls. Many of these changes are statistically significant at 5 or 10%, especially for children aged 0-59 months. The means of the nurse evaluation did not change very much, although the changes were significant at 5%. However, the fraction reported as less than 5 did increase by roughly 10 percent.

Table 18 presents the descriptive regression results for parent or self-reported and nurse-reported general health. These two indicators behave very differently with respect to socioeconomic factors. A poor nurse evaluation is negatively associated with mother's and father's education and positively associated with the household being in poverty in 1997, all being statistically significant at 5%. However, the parent or self-reported health variable is not associated with these variables at all. Strauss and Thomas (1995), among others, argue that self-reported health measures of poor health are often positively associated with better schooling and higher income of parents. This is in part because those groups are more likely to go to modern sector health practitioners, and are consequently better informed of their maladies. This interpretation is consistent with what we see here.

Note that the impact of being in poverty in 1997 is considerably less in 2000 on the nurse evaluation as being in poor health. This may result from the importance of current year's income as opposed to past years' and the fact that there is substantial transience into and out of poverty. Also of note is the heterogeneity by province in reported poor health by nurses. In 1997 children in Jakarta were more likely to be assigned a lower score by nurses. This differential was reduced considerably in 2000, in Jakarta the likelihood of a 5 or below fell, but it rose in most of the other provinces.[33]

Summary and comparison to adult outcomes

If one looks at the entire picture of child health and changes in the IFLS sample between 1997 and 2000, it looks blurred. Parent- and nurse-reported health conditions for children under 5 years worsened. Point estimates of blood hemoglobin levels worsened for the youngest group, although the changes were not statistically significant across the entire relevant range. Weight for height did not

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[33] It is possible that some of these provincial differences result from individual nurses working in Jakarta in 1997 being more likely to give low scores. This can be explored in future work.

change for most groups, although it did worsen for infant girls, though again not statistically significantly. And finally height for age did improve, statistically significantly and substantially for most groups.

Overall, this is not a pattern of health catastrophe that one might have worried about given the economic crisis, although the trajectory of historical health improvements very likely was interrupted. This suggests that in the medium-run either the crisis did not hit hard at many of the IFLS households, or that its impacts were very short-run, or that households had ways with which they were able to smooth these child health outcomes in the medium-run.

One of the ways in which health of children might have been protected was by sacrificing the health of adults. Indeed Frankenberg, Thomas and Beegle (1999) show that BMI of the elderly declined in the first year of the crisis. By 2000, however, that situation had changed. Table 19 reports mean body mass index and fractions less than 18.5 (commonly used as a threshold to indicate undernutrition) for different aged men and women. There are no clear patterns here. There is some worsening in undernutrition for men 20-39, but an improvement for men and women aged 40-59 and virtually no change for those over 60.

What is much more interesting about this table are the relatively high fractions of adults who are overweight, especially women. This is an example of a phenomenon that is of increasing importance in poor countries as well as rich (the literature on this topic is rapidly growing, see for instance Popkin and Doak, 1998, or Philipson, 2001) and which needs to be explored in future research.

5. Child health input utilization

Changes in child health outcomes are caused by changes in child health inputs, some chosen by households given the information and constraints that they face, and some purely external to them. In this section we examine changes in three such inputs: outpatient health care utilization, immunizations and supplemental vitamin A.[34] We use data both at the child level and at the health facility level, detailing levels and changes in levels and in quality of services targeted towards children. The facility level data come from a probabilistic sample of health facilities known and used by household respondents, taken in each of the original 321 enumeration areas of IFLS.[35]

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[34] Data on child immunizations are taken from immunization cards in the possession of the mother, one for each child, on which a record of immunizations and dates are kept. When the card is not available, we use recall data only when the mother is quite sure about the record.

[35] Three types of facilities are sampled. Government health clinics: puskesmas, and their smaller satellites, puskesmas pembantu (or pustu) are sampled as one group. The other sampled group of "facilities" are posyandu, which are (typically) monthly local mother-child health clinics which are run by the local community out of their own resources, usually with support from the local puskesmas and the local village midwife (bidan desa). A typical posyandu offers services once per month. During this time a meal is provided to children under 5 years, their

Table 20 shows utilization rates by type of outpatient facility by boys and girls, aged 0-59 months and 5-14 years. The large change that has occurred between 1997 and 2000 is the major drop in utilization of posyandu by young children (posyandu only serve children from birth to 5 years). This result was also found in 1998 (Frankenberg, Thomas and Beegle, 1999). There is also a small increase in utilization of private health services by young children, particularly of private nurses and midwives on the one hand, and to a lesser extent of private doctors. Little in the way of change in utilization is observed for older children, aged 5-14 years. Also little change in utilization of puskesmas or puskesmas/pembantu services is observed.[36] This is important because it is arguably the puskesmas level that is the major point of contact of most people with the health system.

Table 21 examines immunization and external vitamin A uptakes of 12 to 59 month olds. It is interesting to see a substantial increase in the fraction of children who have received their completed cycle of polio and DPT vaccinations, as well as large increases in measles and hepatitis B vaccinations (plus a smaller increase in BCG). Overall, this has led to a doubling of the proportion of children receiving all vaccinations (including hepatitis B) to just over one-quarter of children 12-59 months. As we will see below, there is corroborating evidence from facilities.

For supplemental vitamin A uptake, this has declined substantially, perhaps because much of the vitamin A distribution had been through posyandu, which as we have seen, have had major declines in use.

Table 22 presents the descriptive regressions for outpatient utilization of some modern service, and then broken into public and private.[37] Table 23 does the same for use of posyandu by children under 5 years, and Table 24 presents the results for having received a complete set of vaccinations.

Being in poverty in 1997 has a large suppressing effect on whether a child goes to receive outpatient care. Higher parental education has smaller, positive impacts. Older children are less likely to visit an outpatient facility. Children in rural areas are also less likely to utilize outpatient facilities. Within Java, children living outside of Jakarta were much more likely to utilize care in 1997. However, for girls much of this positive differential relative to Jakarta disappears by 2000. By 2000, utilization of services by girls declined by especially large proportions in the eastern islands of Bali, NTB, South Kalimantan and South Sulawesi. For boys the declines in these provinces were a little more moderate.

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heights and weights are taken, and monitored over time, immunizations are given, as are supplemental vitamin A tablets, and mother/child nutrition and health advise is given. Some posyandu also provide family planning counseling, and in a few cases, supplies.

[36] Adult usage of puskesmas did decline some over this period, while use of private practitioners by adults increased.

[37] Since multiple types of facilities could have been visited, we do not use a multinomial logit or a similar estimator, but simply use linear probability models to estimate use.

For use of private outpatient facilities, the marginal impact of mother's education and of being in poverty is stronger than for public use, similar to what is found in the literature. For boys, father's education is important, while for girls it is not, again similar to the results found by Thomas (1994) and others.

Posyandu utilization is not strongly associated with parental schooling, but is negatively associated with being in a poor household in 1997, especially for boys. So posyandu are apparently not catering to the poor, but then neither is it better educated parents who are sending their children to posyandu. Posyandu utilization tended to be higher in 1997 outside of Jakarta, but in 2000 utilization outside of Jakarta fell relative to Jakarta.

For getting complete immunizations, both mother's and father's education have important positive effects. A child of a mother who completes primary school (six years) has a 3.5% better chance of having received a complete set of vaccinations (the mean percent in 2000 being about 24%). Across provinces, children in Bali and Yogyakarta began with a substantial advantage in complete immunization rates over children Jakarta in 1997. By 2000 there were substantial increases everywhere, but more so in provinces outside of Jakarta and Bali.

In Table 25 we report the fraction of our sampled public clinics (puskesmas and puskesmas pembantu) and private practitioners that reported providing certain basic services in 1997 and 2000. The provision of immunization services is what is of particular interest here. High fractions of public clinics, around 85-90%, do provide immunization services and that fraction increased between 1997 and 2000, particularly for hepatitis B. This expansion of clinics offering immunizations is clearly consistent with the increase in immunization uptake at the child level. However given the size of the increase at the child level, it is likely that more intensive immunization services in clinics already providing vaccines also played a role.

Only about one-third of private practitioners provide vaccinations, in part because our definition of private includes practitioners such as midwives, who would normally not be expected to provide these services. Between 1997 and 2000 there was a small decline in the proportion of private practitioners providing vaccinations, which could be an artifact of a small increase in the proportion of midwives represented in the sample.

A different measure of problem, or success, in providing vaccinations is whether a clinic has had a stock outage of vaccines and for how long. The problem with this measure is that an outage could result from supply problems or from excess demand. The former interpretation would be considered as negative, whereas the latter would be considered as good. In fact we cannot distinguish between these two explanations. With this caveat in mind, we only count facilities that provide vaccination services in examining outages and examine the incidence and severity of outages over a six month reference period.

Table 26 presents the results. The incidence of vaccine outages over the past six months declined between 1997 and 2000, and significantly so at 5% in most cases. The severity of any outage, in terms of number of weeks, also declined in public facilities, although the declines are not always statistically significant. Given the increase in coverage shown in Table 11, it would appear that supplies of vaccines improved during this period and helped to enable the expansion of coverage.

In contrast, services and service quality at posyandu seems to have declined over this period, consistent with the large decline in posyandu usage. Table 27 presents the fraction of sampled posyandu that offered certain basic services. With the notable exception of providing supplementary food, other services offered declined. In Table 28 we see that the availability of supplies and instruments needed by posyandu to offer their services also declined over this period, significantly so in most cases. This decline in availability may be following the decline in posyandu usage, so that one has to be somewhat careful in interpreting these results.

Overall, again a mixed picture emerges. For the posyandu, clearly there have been important declines in usage and probably in quality of services offered. The private sector, particularly midwives and nurses, seems to have picked up some of this demand. For puskesmas, which are arguably more important in the overall public health system, there does not seem to have been a decline in use by children, nor do we see an obvious decline in the quality of services offered to children in puskesmas.

6. Conclusions

As of late 2000, almost three years after the economic crisis began, children in the IFLS data do not appear substantially worse off in terms of health and of income poverty than they were before the crisis began at the end of 1997. Indeed, perhaps surprisingly, many children now seem a little better off, at least in terms of lowered levels of poverty and in terms of some dimensions of health. Any improvement is certainly not universal and there are some important dimensions of health in which worsening occurred for parts of the population. The increases in standardized heights across the board as well as in immunizations are notable. On the other hand, hemoglobin levels declined for children under 5 years, and for very young infant girls, weight for height may have worsened.

Taking a longer view, it is certainly the case that the health and living standards of children in Indonesia have improved substantially since 1960. The economic crisis has certainly interrupted that progress, although in this first look at how children fared between 1997 and 2000, we do not quantify the crisis impact on longer term movements of health and poverty. Nevertheless, a large chasm remains in order to achieve the levels of child health set by international standards. As we have argued, child heights, weight for heights and hemoglobin levels are very low, both before and after the crisis. This reflects continued poor health outcomes, especially during the formative period before age 5 (though, again, clearly much better than in generations past). Poverty may have climbed back to 1997 levels from highs reached in early 1999, but for children these levels are still high.

References

Atkinson, Anthony B. 1987. On the measurement of poverty, *Econometrica*, 55(4):749-764.

Baulch, Robert and John Hoddinott. 2000. Economic mobility and poverty dynamics in developing coutries, *Journal of Development Studies*, 36(6):1-24.

Centers for Disease Control. 1998. *Recommendations to prevent and control iron deficiency in the United States*, Morbidity and Mortality Weekly Report: Recommendations and Reports, April 3, 1998, Vol 47, No. RR-3, Atlanta, Georgia.

Davidson, Russell and Jean-Yves Duclos. 2000. Statistical inference for stochastic dominance and for the measurement of poverty and inequality, *Econometrica*, 68(6):1435-1464.

Deaton, Angus. 2001. Counting the world's poor: Problems and possible solutions, *World Bank Research Observer*, 16(2):125-148.

Deaton, Angus and Margaret Grosh. 2000. Consumption, in M. Grosh and P. Glewwe (eds.), *Designing Household Survey Questionnaires for Developing Countries: Lessons From 15 Years of the Living Standards Measurement Study, Volume 1*, Washington DC: World Bank.

Deaton, Angus and Alessandro Tarozzi. 2000. Prices and poverty in India, mimeo, Department of Economics, Princeton University.

Duclos, Jean_Yves, Abdelkrim Araar and Bernard Fortin. 2001. *DAD: A software for distributive analysis/ analyse distributive, Users Manual*, International Development Research Center, Ottawa, Canada, also at www.ecn.ulaval.ca/~jyves.

Foster, Andrew. 1995. Rice prices, credit markets and child growth in rural Bangladesh, *Economic Journal*, 105(430):551-570.

Frankenberg, Elizabeth and Lynn Karoly. 1995. The 1993 Indonesian Family Life Survey: Overview and field report, Publication No. DRU-1195/1-NICHD/AID, RAND, Santa Monica, CA.

Frankenberg, Elizabeth and Duncan Thomas. 2000. The Indonesia Family Life Survey (IFLS): Study design and results from waves 1 and 2, Publication No. DRU-2238/Volume 1/NIA/NICHD, RAND, Santa Monica, CA.

Frankenberg, Elizabeth, Duncan Thomas and Kathleen Beegle. 1999. The real costs of Indonesia's economic crisis: Preliminary findings from the Indonesia Family Life Surveys, RAND Labor and Population Program Working Paper Series 99-04, Santa Monica, CA.

Gilligan, Daniel, Hanan Jacoby and Jaime Quizon. 2000. The effects of the Indonesian economic crisis on agricultural households: Evidence from the National Farmers Household Panel Survey (PATANAS), mimeo, World Bank, Washington D.C.

Kaiser, Kai, Tubagus Choesni, Paul Gertler, David Levine, and Jack Molyneaux. 2001. The cost of living over time and space in Indonesia, mimeo.

Martorell, Reynaldo and Jean-Pierre Habicht. 1986. Growth in early childhood in developing countries, in F. Falkner and J.M. Tanner (eds.), *Human Growth: A Comprehensive Treatise, Volume 3*, New York: Plenum Press.

National Research Council. 1993. *Demographic effects of economic reversals in sub-Saharan Africa*, Washington D.C.: National Academy Press.

Philipson, Tomas. 2001. The world-wide growth in obesity: An economic research agenda, *Health Economics*, 10:1-7.

Popkin, Barry and Colleen Doak. 1998. The obesity epidemic is a worldwide phenomenon, *Nutrition Reviews*, 56(4):106-114.

Pradhan, Menno, Asep Suryahdi, Sudarno Sumarto, Lant Pritchett. 2000. Measurement of Poverty in Indonesia: 1996, 1999, and Beyond. SMERU Working Paper, Jakarta, Indonesia.

Ravallion, Martin. 1994. *Poverty Comparisons*, Chur Switzerland: Harwood Academic Pubishers.

Ravallion, Martin. 1997. Famines and economics, *Journal of Economic Literature*, 35(3):1205-1242.

Ravallion, Martin and Benu Bindani. 1994. How robust is a poverty profile?, *World Bank Economic Review*, 8(1):75-102.

Sastry, Narayan. 2002. Forest fires, air pollution, and mortality in Southeast Asia, *Demography*, 39(1):1-24.

Smith, James P., Duncan Thomas, Elizabeth Frankenberg, Kathleen Beegle and Graciela Teruel. 2002. Wages, employment and economic shocks: Evidence from Indonesia, *Journal of Population Economics*, 15:161-193.

Suryahadi, Asep, Sudarno Sumarto, Yusuf Suharso, Lant Pritchett. 2000. The evolution of poverty during the crisis in Indonesia, 1996 to 1999. World Bank Staff Working Paper No.

Strauss, John and Duncan Thomas. 1995. Human resources: Empirical modeling of household and family decisions, in J. Behrman and T.N. Srinivasan (eds.), *Handbook of Development Economics, Volume 3A*, Amsterdam: North Holland Press.

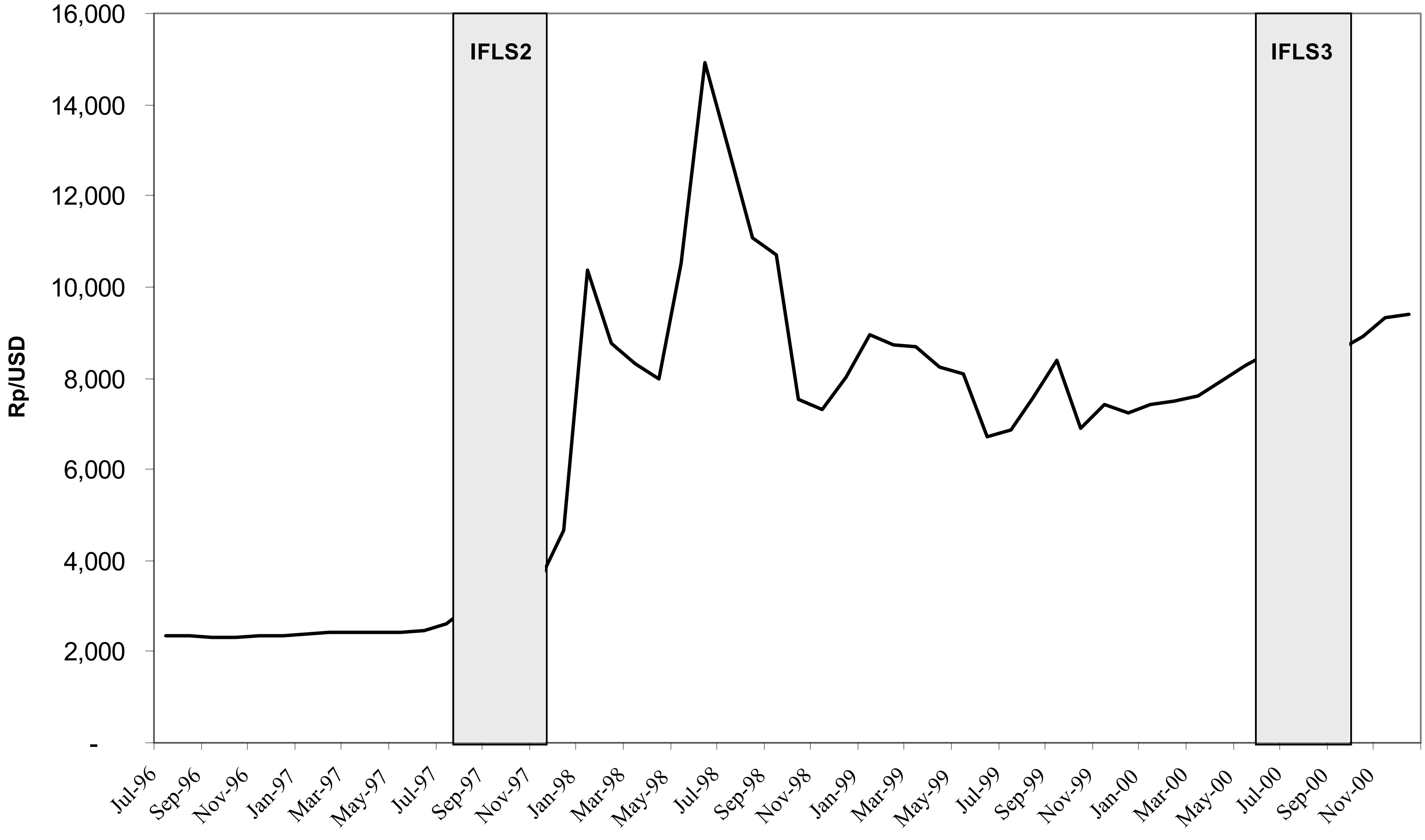
Thomas, Duncan. 1994. Like father like son; Like mother, daughter: Parental resources and child height, *Journal of Human Resources*, 29(4):950-988.

Witoelar, Firman. 2002. Income pooling in extended households: Evidence from the Indonesia Family Life Survey, mimeo, Department of Economics, Michigan State University, East Lansing, MI.

World Bank. 1997. *Everyone's Miracle? Revisiting Poverty and Inequality in East Asia*, Washington D.C.

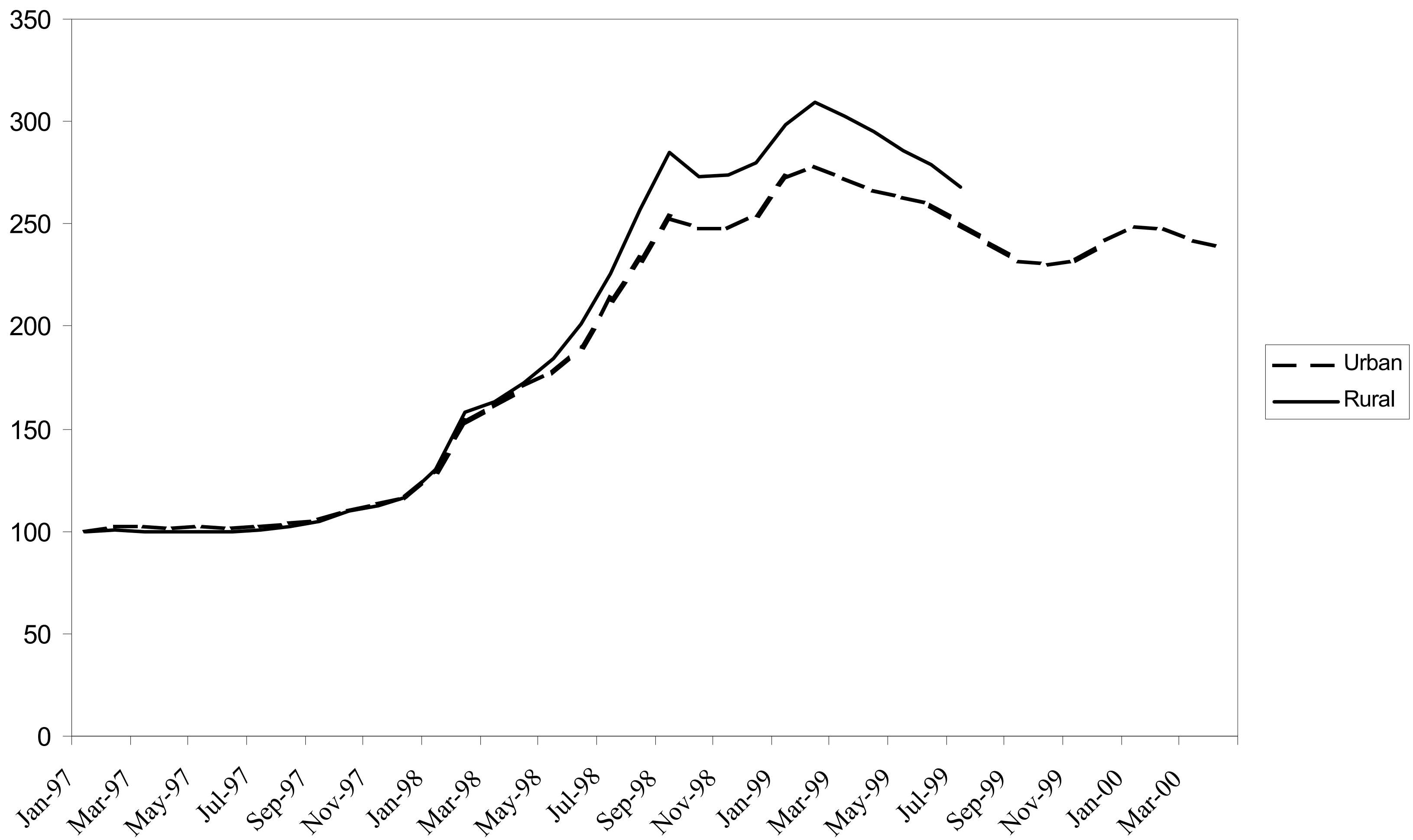
World Bank. 1998. *East Asia: The Road to Recovery*, Washington DC.

Figure 1
Timing of the IFLS and the Rp/USD Exchange Rate



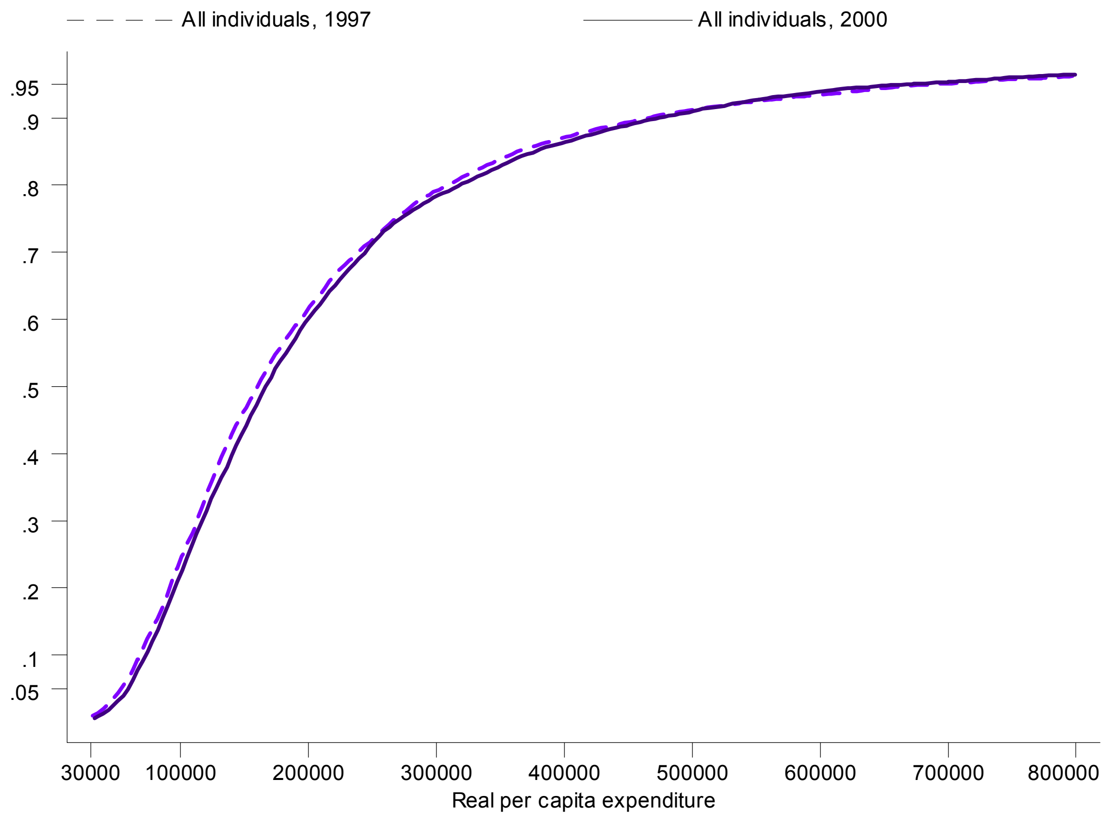
Source: Pacific Exchange Rate Service *http://pacific.commerce.ubc.ca.xr/*

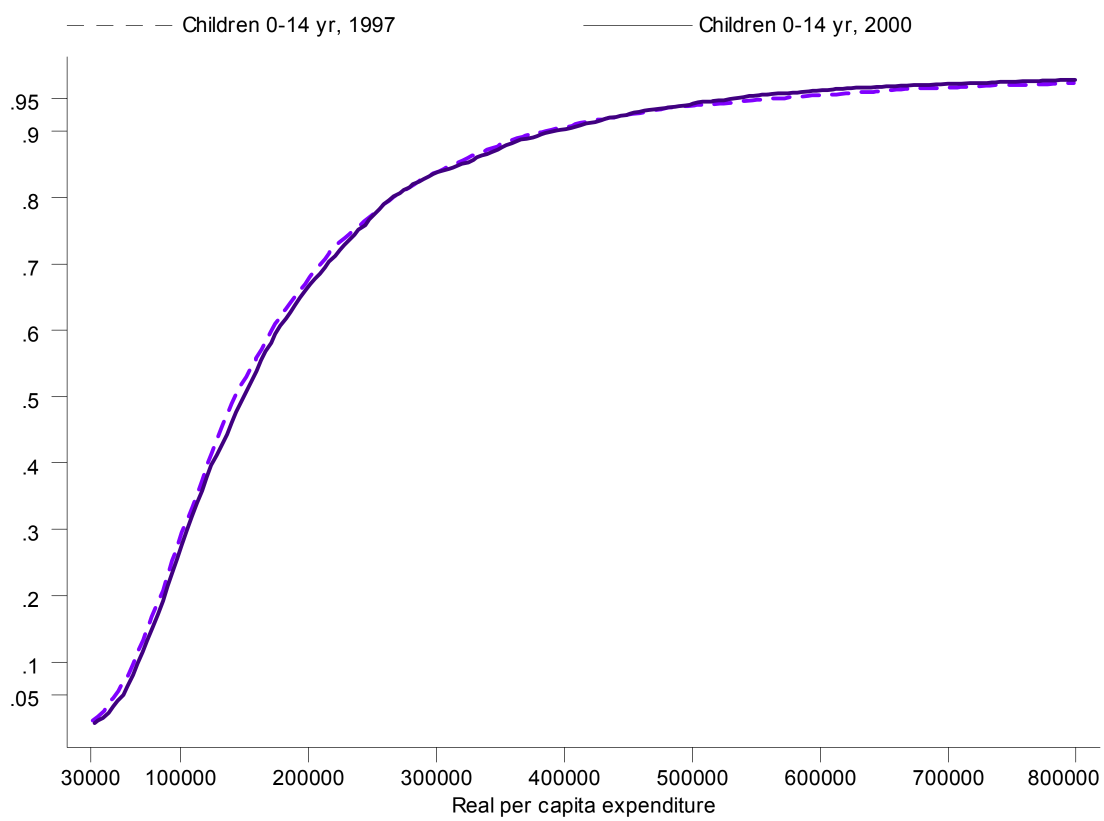
Figure 2
Food Price Index (Jan. 97 = 100)



Source: Kaiser, Choesni, Gertler, Levine, Molyneaux (2001) " The Cost of Living over Time and Space in Indonesia"

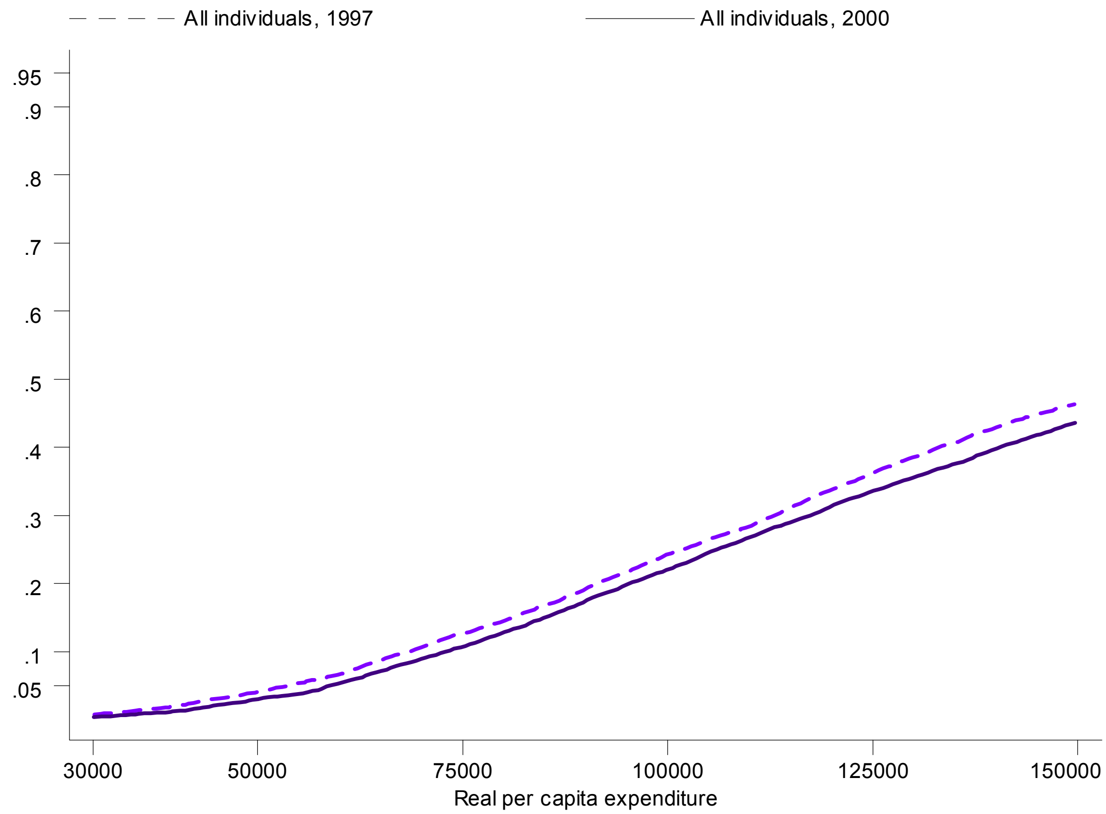
Figure 3
Povertv Incidence Curves of All Individuals and Children: 1997 and 2000

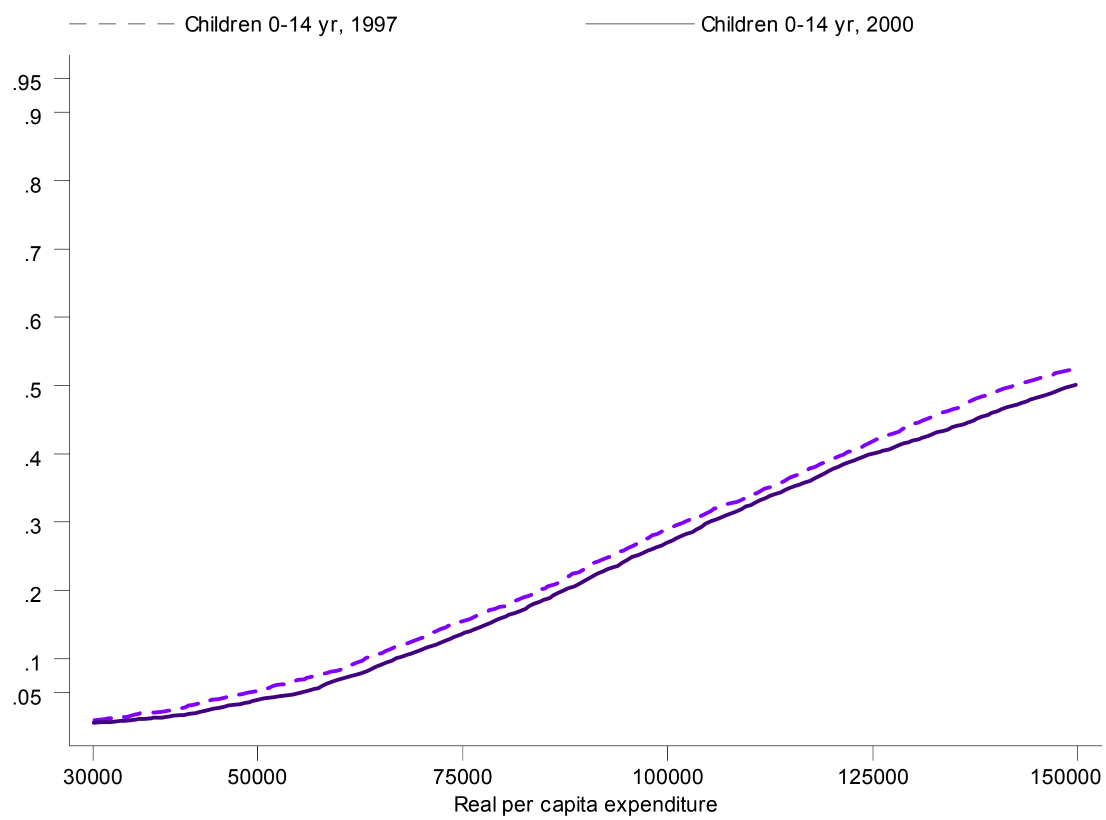




Source: IFLS 2 and IFLS 3

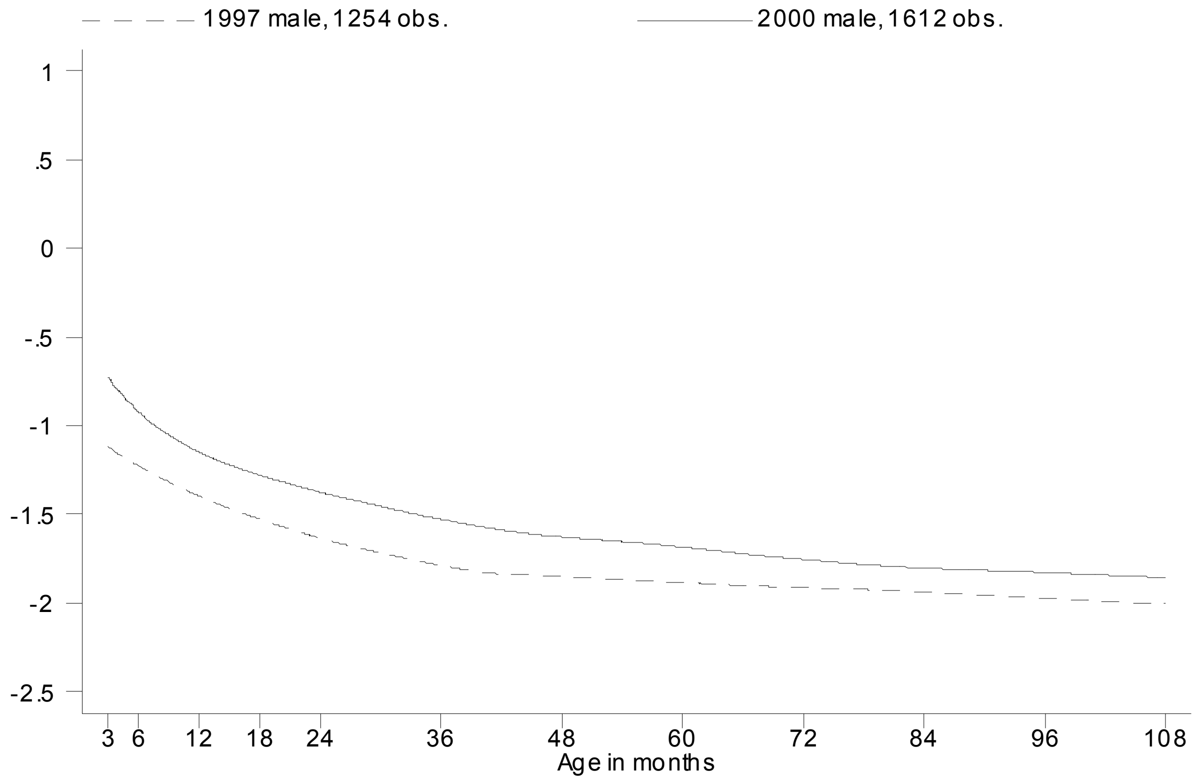
Figure 4
Lower Tail of Poverty Incidence Curves of All Individuals and Children: 1997 and 2000

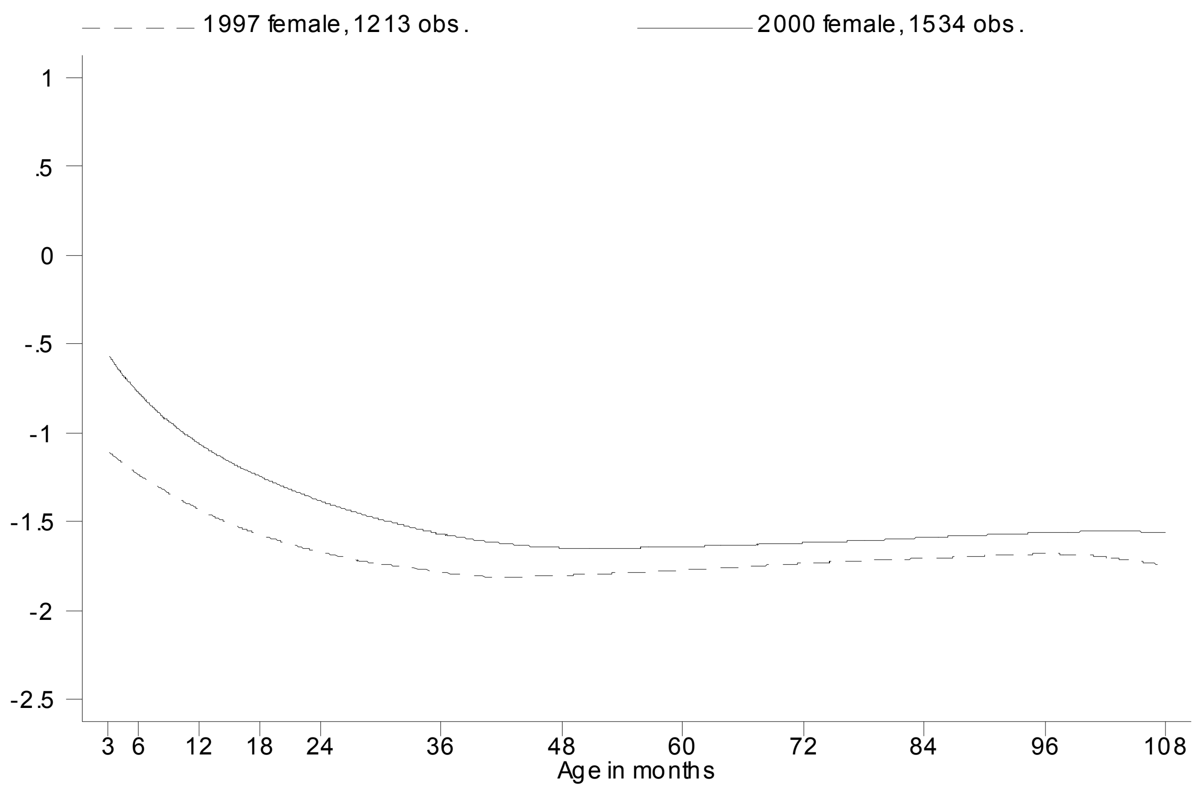




Source: IFLS 2 and IFLS 3

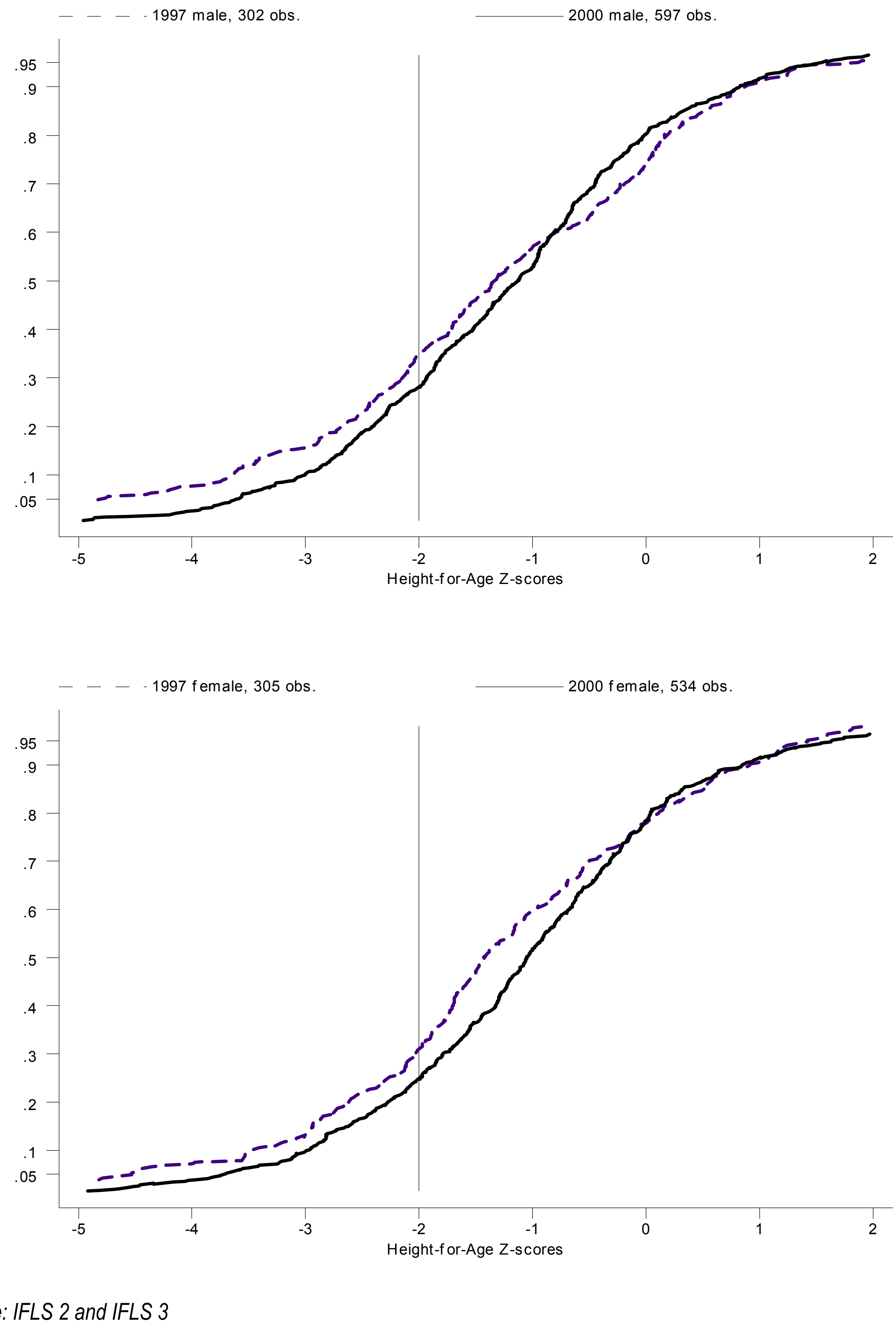
Figure 5
Child Standardized Height-for-Age, 3-108 Months (lowess, bandwith=0.8)





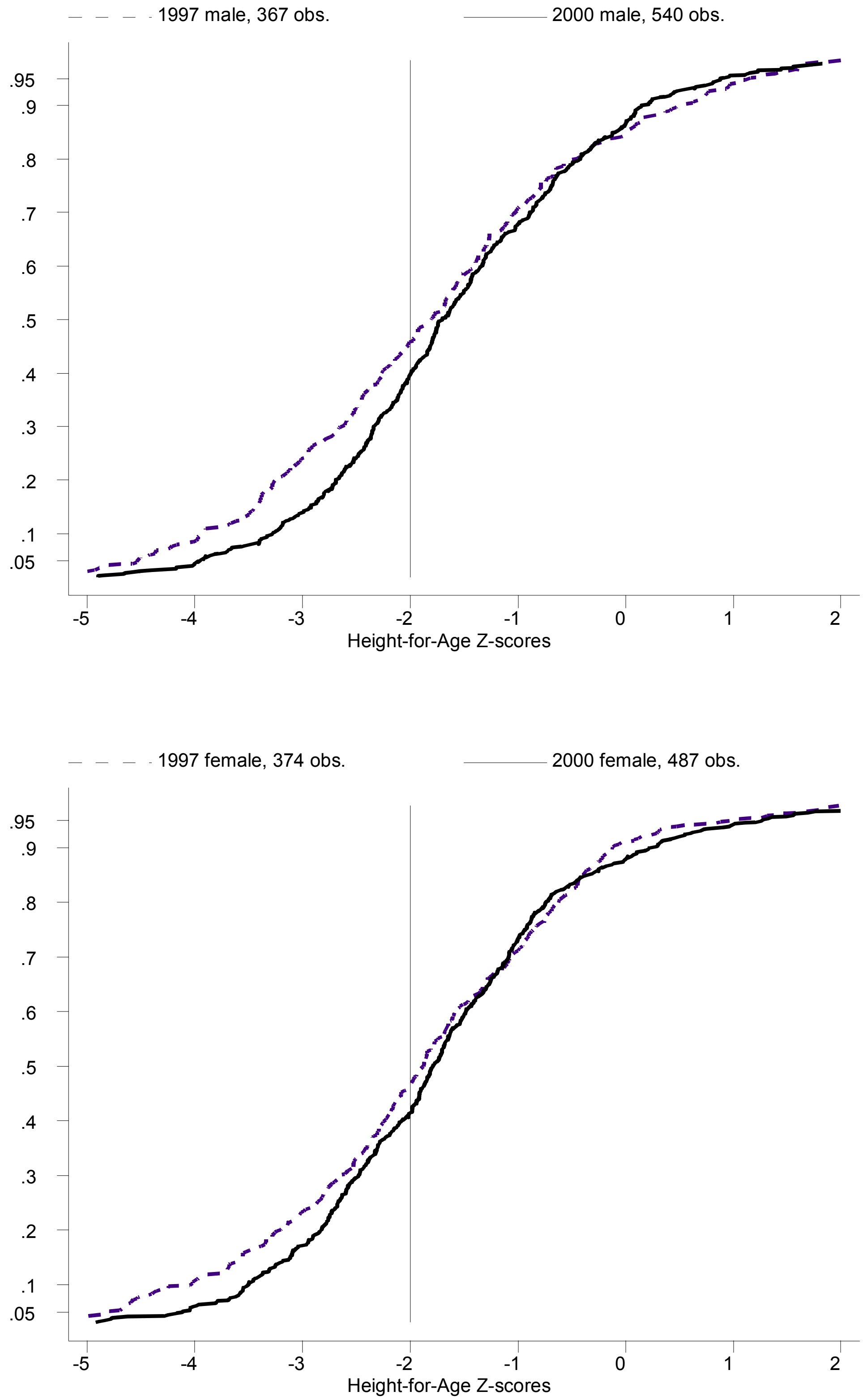
Source: IFLS 2 and IFLS 3

Figure 6
CDF of Child Standardized Height-for-Age for 3-17 Months



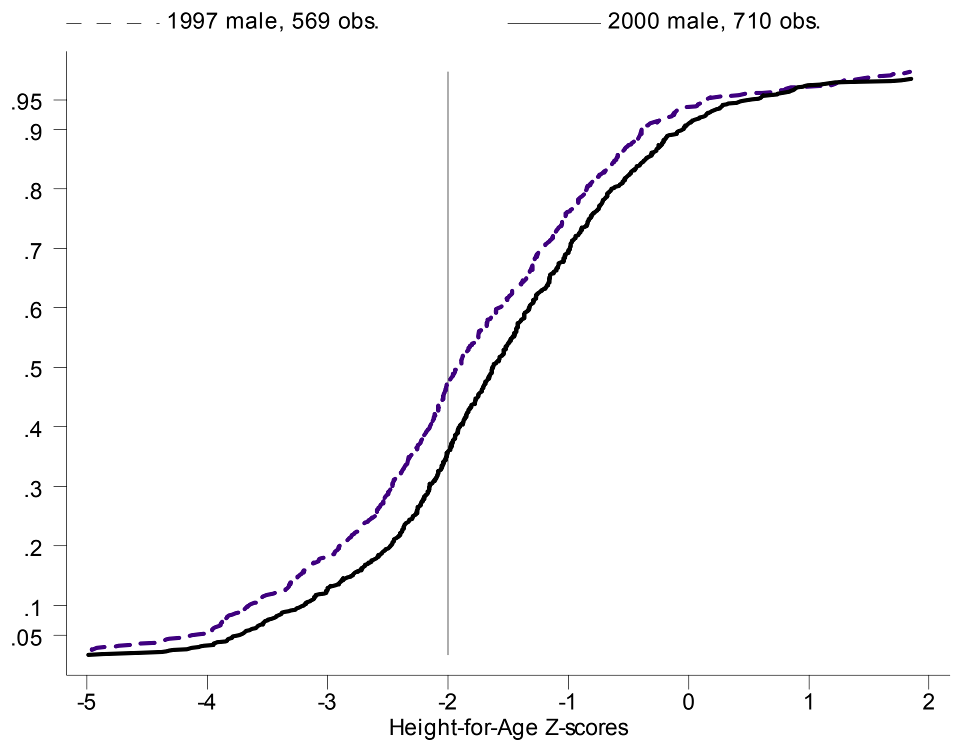
Source: IFLS 2 and IFLS 3

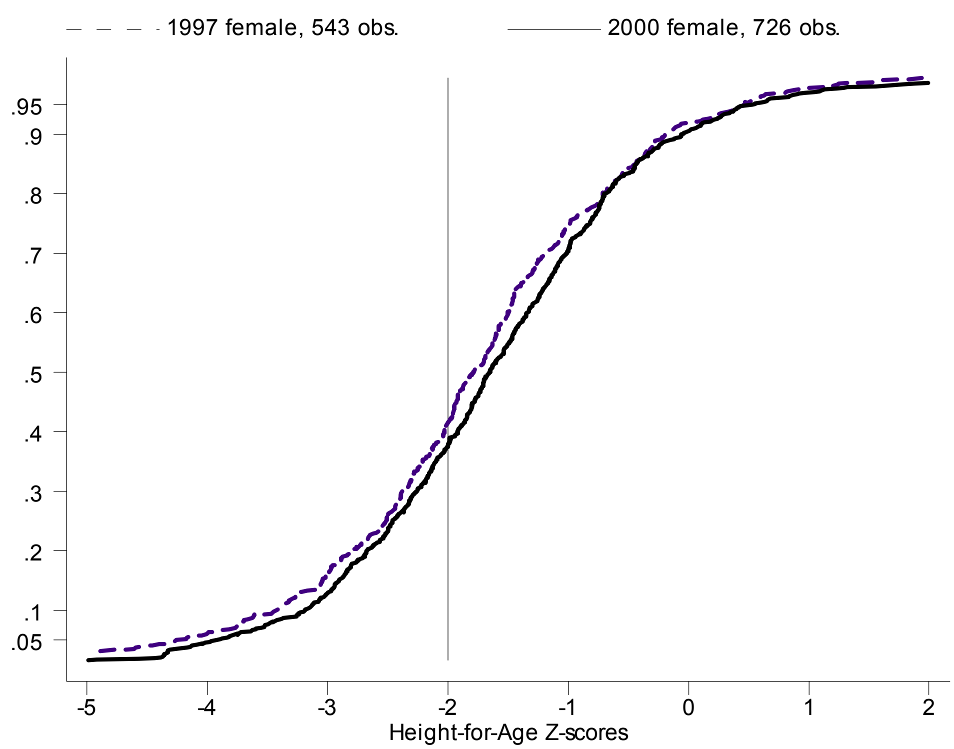
Figure 7
CDF of Child Standardized Height-for-Age for 18-35 Months



Source: IFLS 2 and IFLS 3

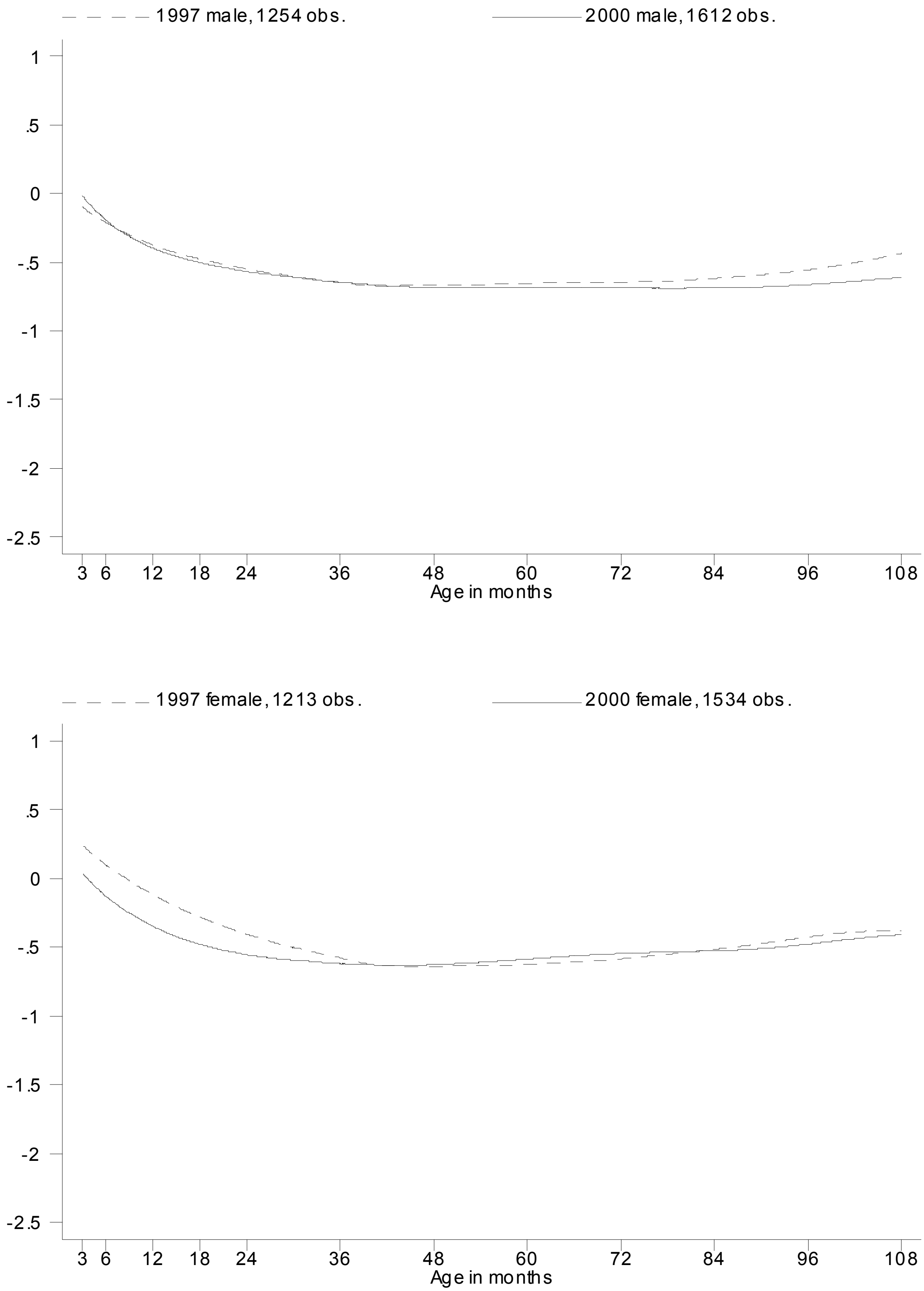
Figure 8
CDF of Child Standardized Height-for-Age for 36-59 Months





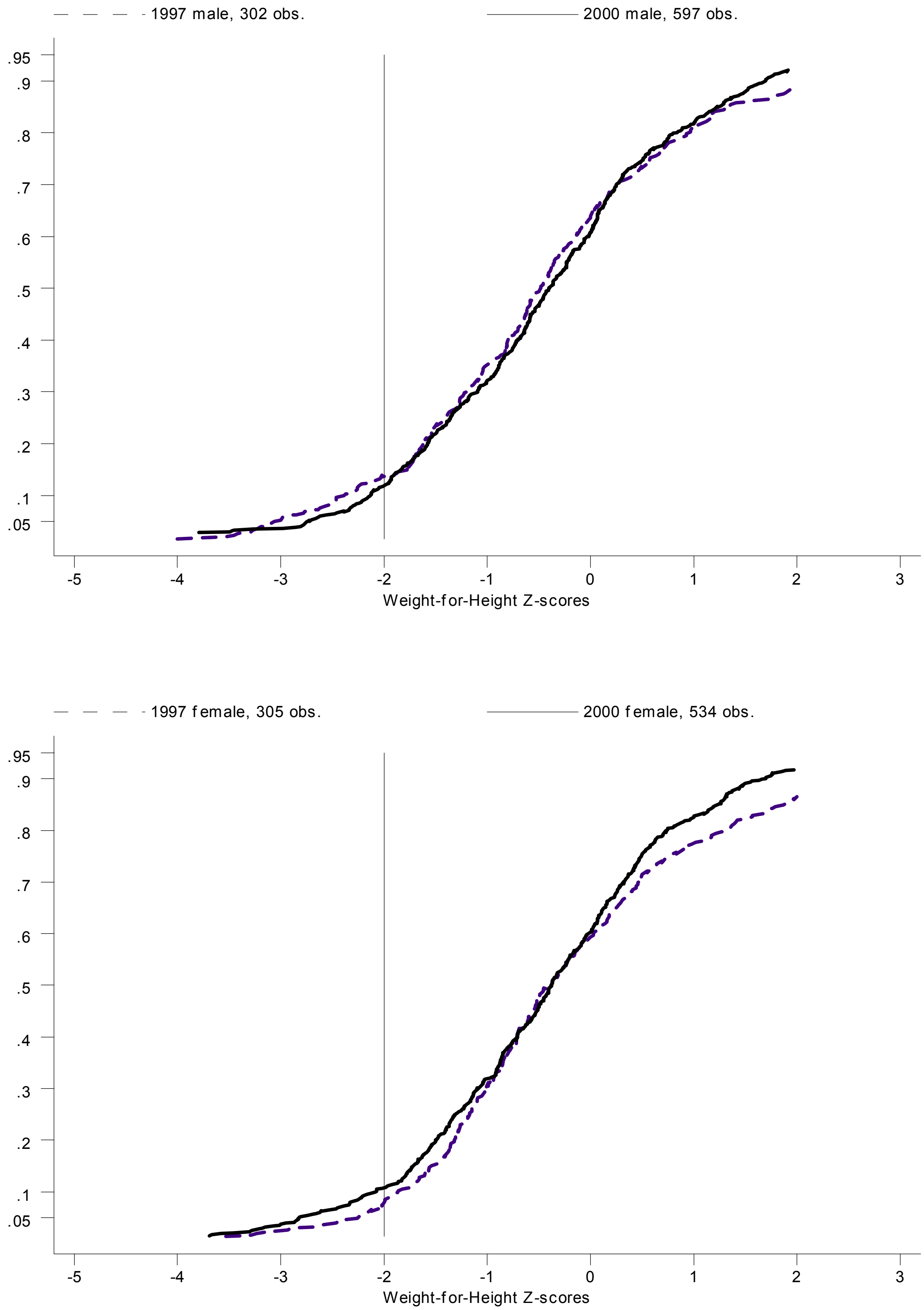
Source: IFLS 2 and IFLS 3

Figure 9
Child Standardized Weight-for-Height, 3-108 Months (lowess, bandwith=0.8)



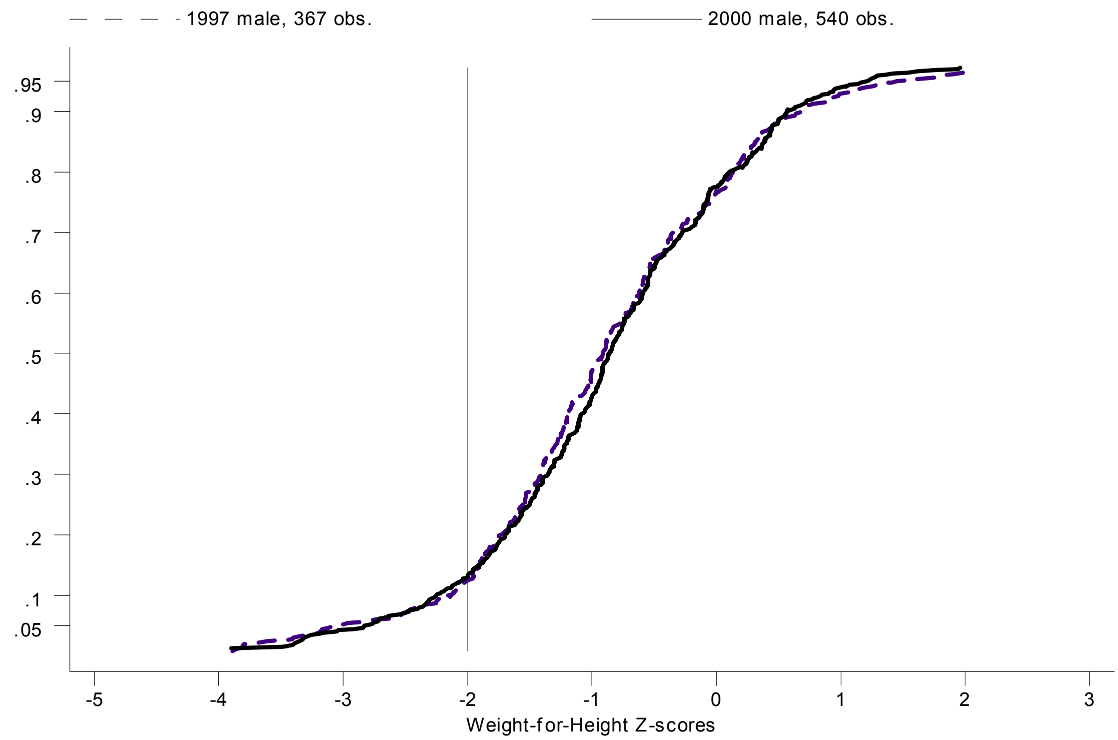
Source: IFLS 2 and IFLS 3

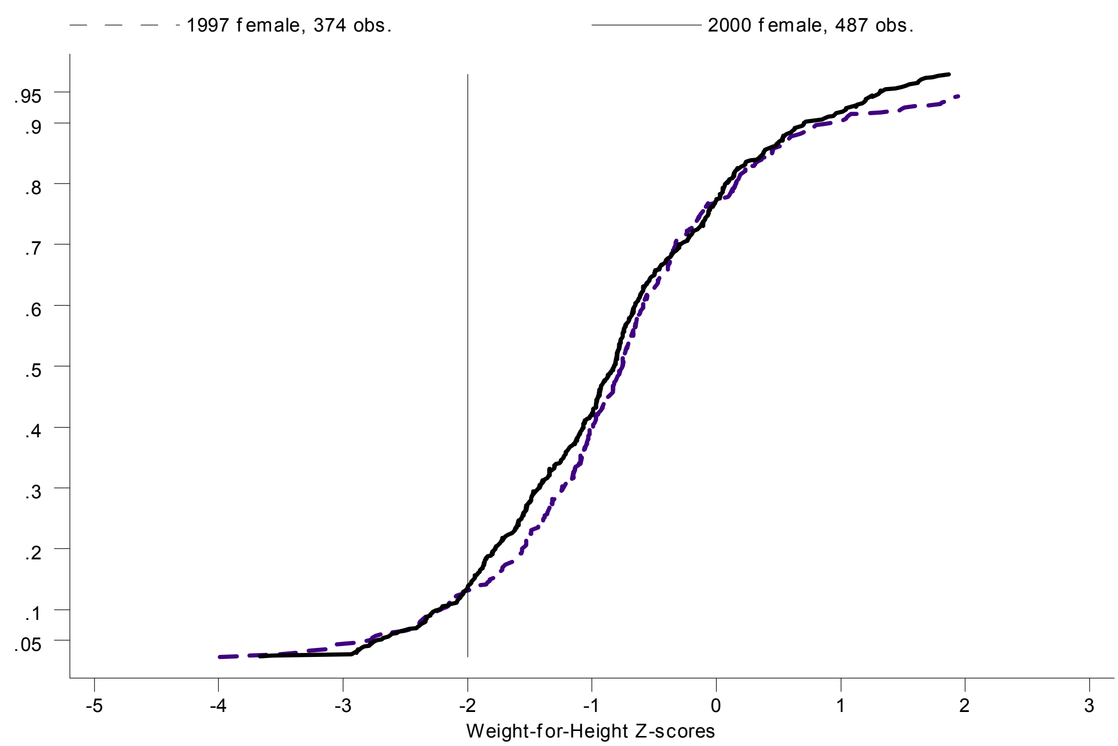
Figure 10
CDF of Child Standardized Weight-for-Height for 3-17 Months



Source: IFLS 2 and IFLS 3

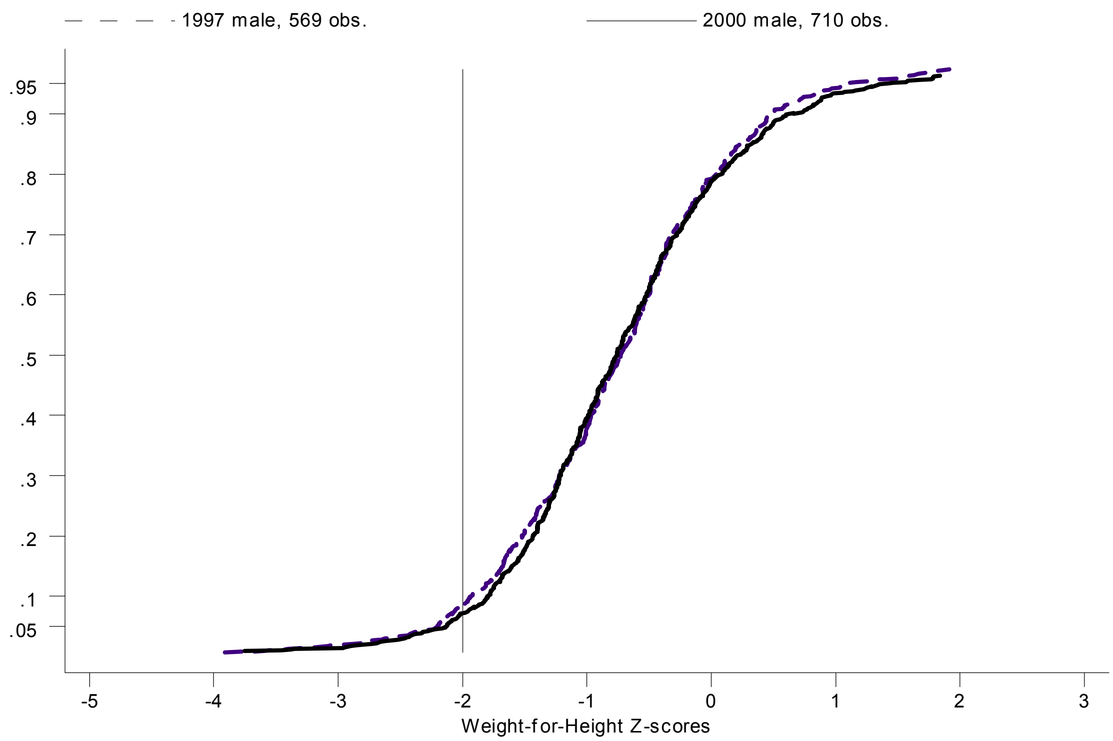
Figure 11
CDF of Child Standardized Weight-for-Height for 18-35 Months

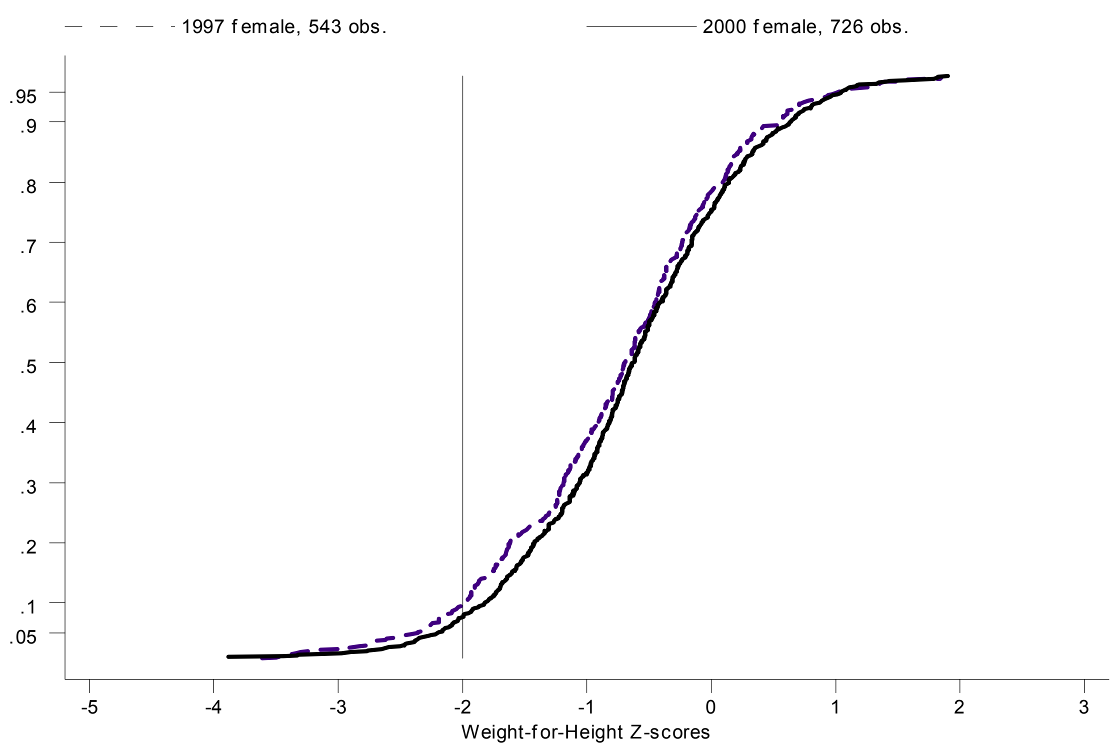




Source: IFLS 2 and IFLS 3

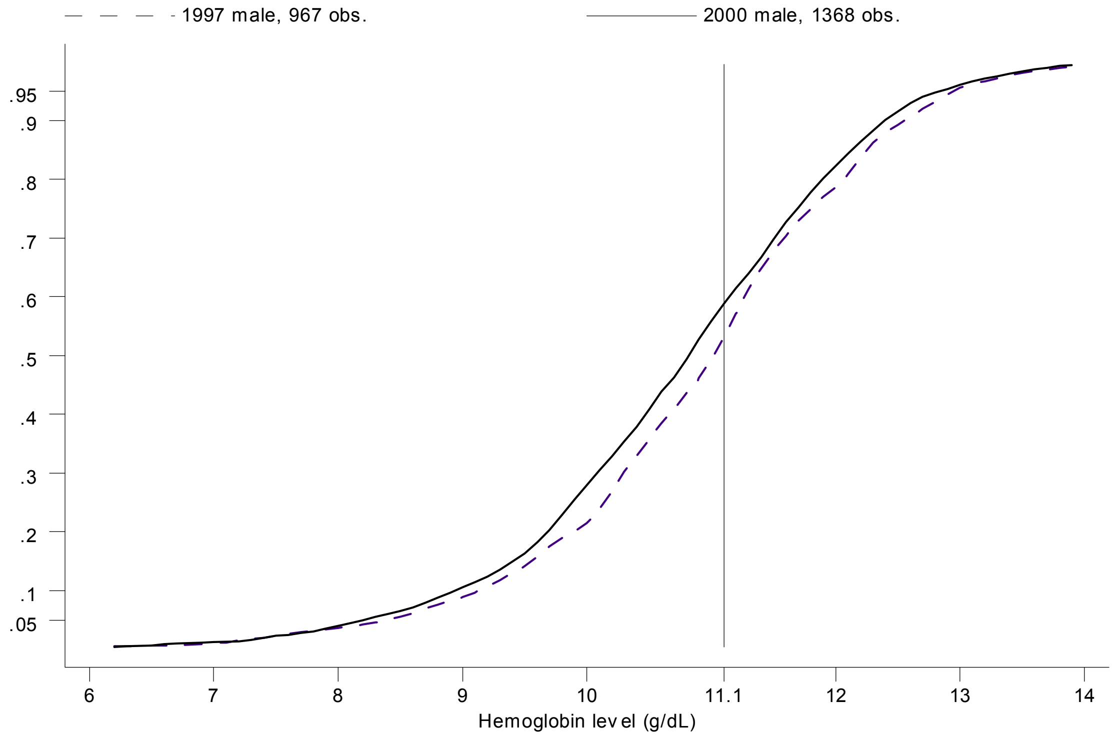
Figure 12
CDF of Child Standardized Weight-for-Height for 36-59 Months

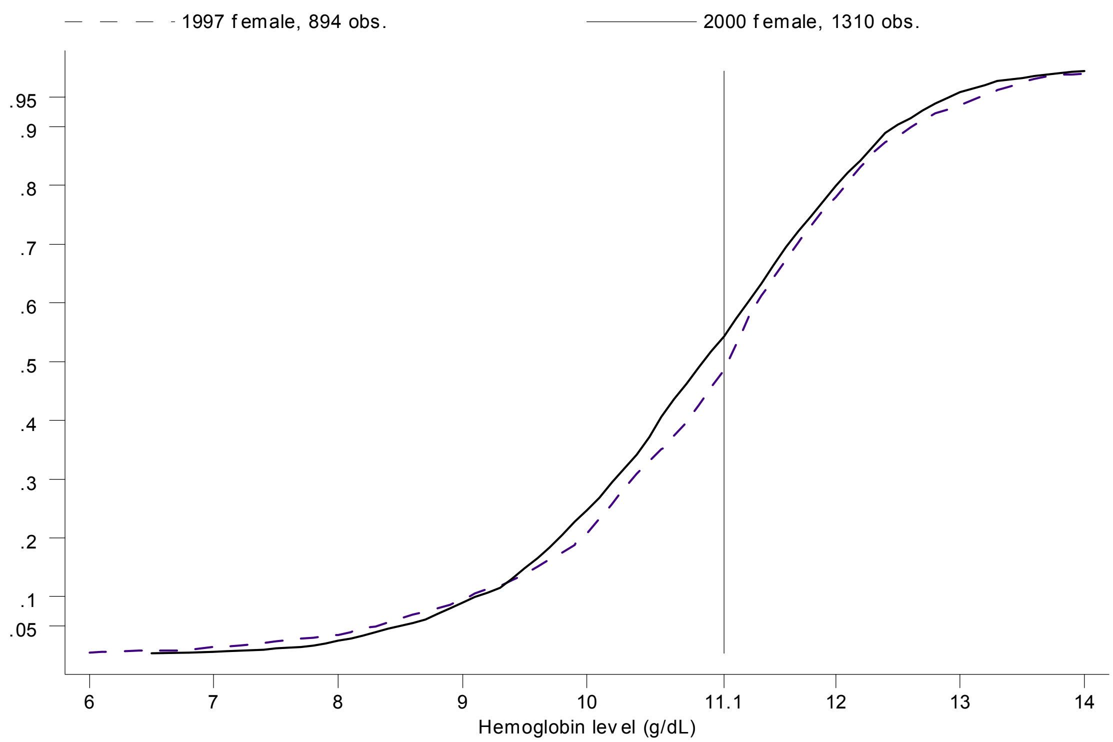




Source: IFLS 2 and IFLS 3

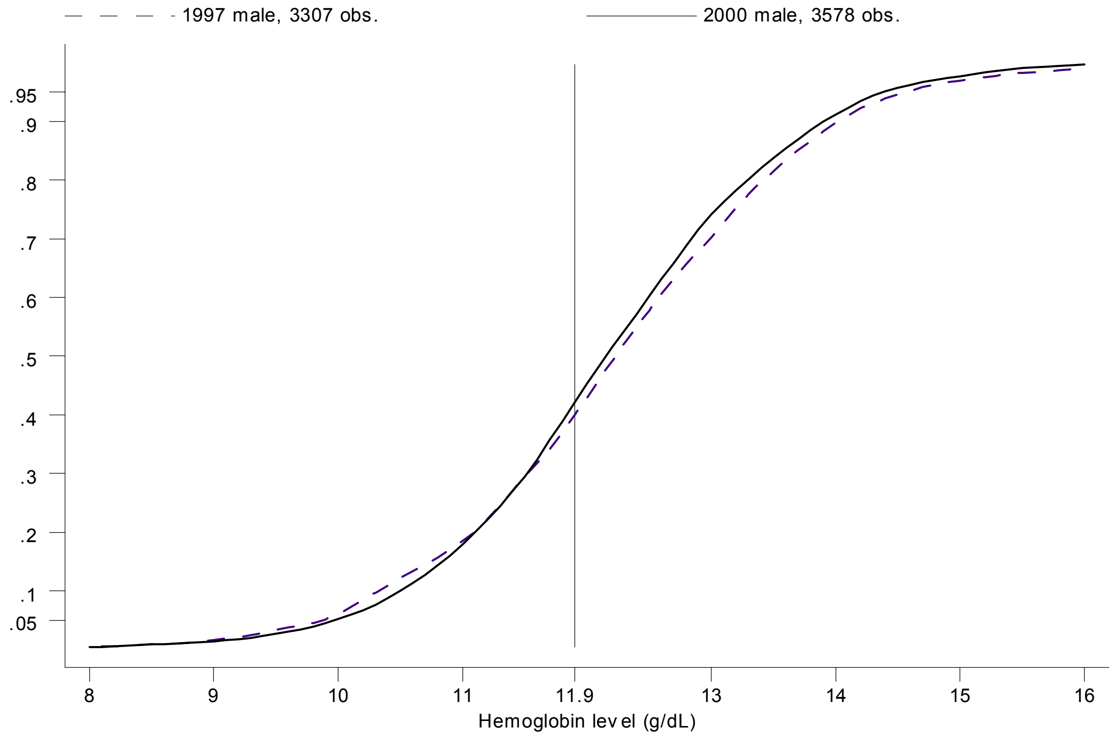
Figure 13
CDF of Hemoglobin Level for Children 12-59 Months

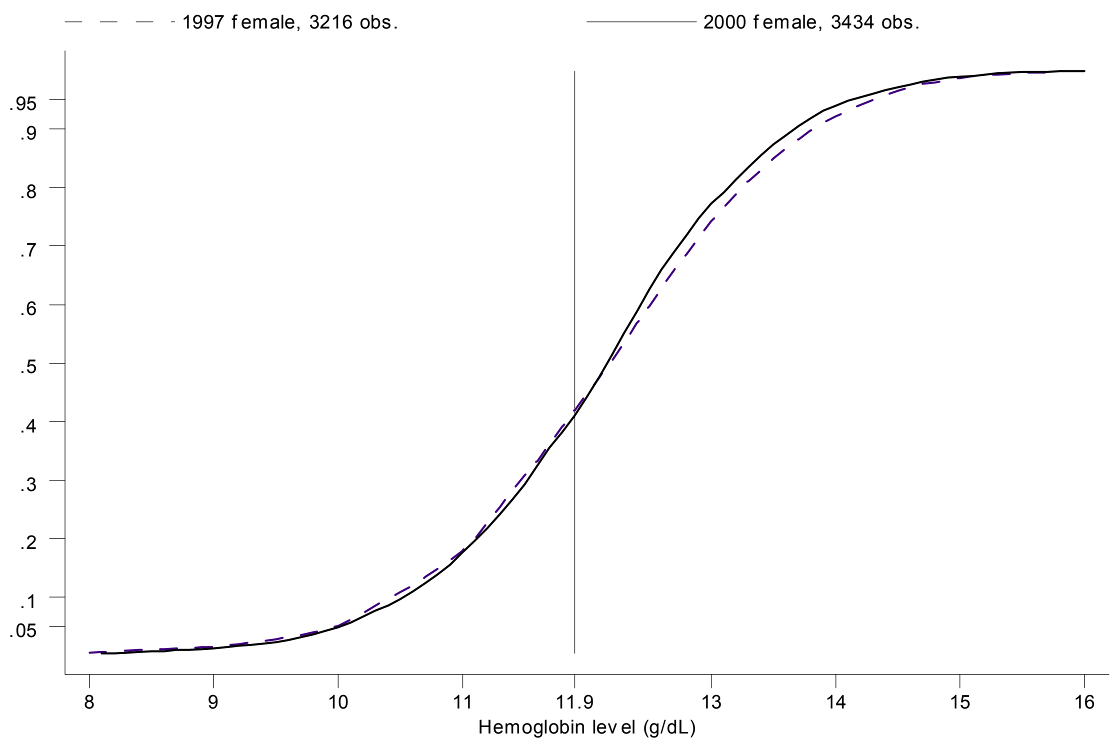




Source: IFLS 2 and IFLS 3

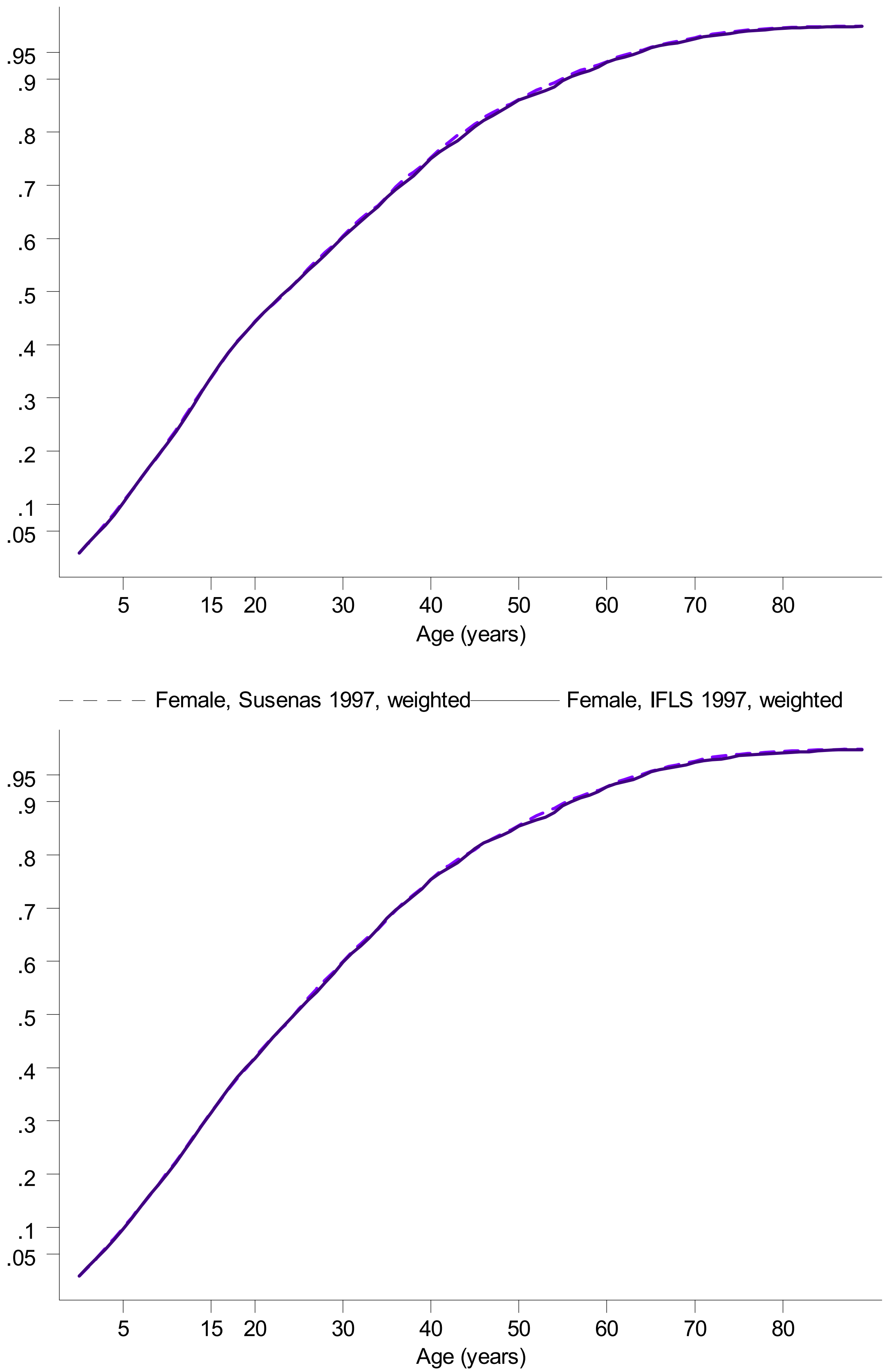
Figure 14
CDF of Hemoglobin Level for Children 5-14 Years





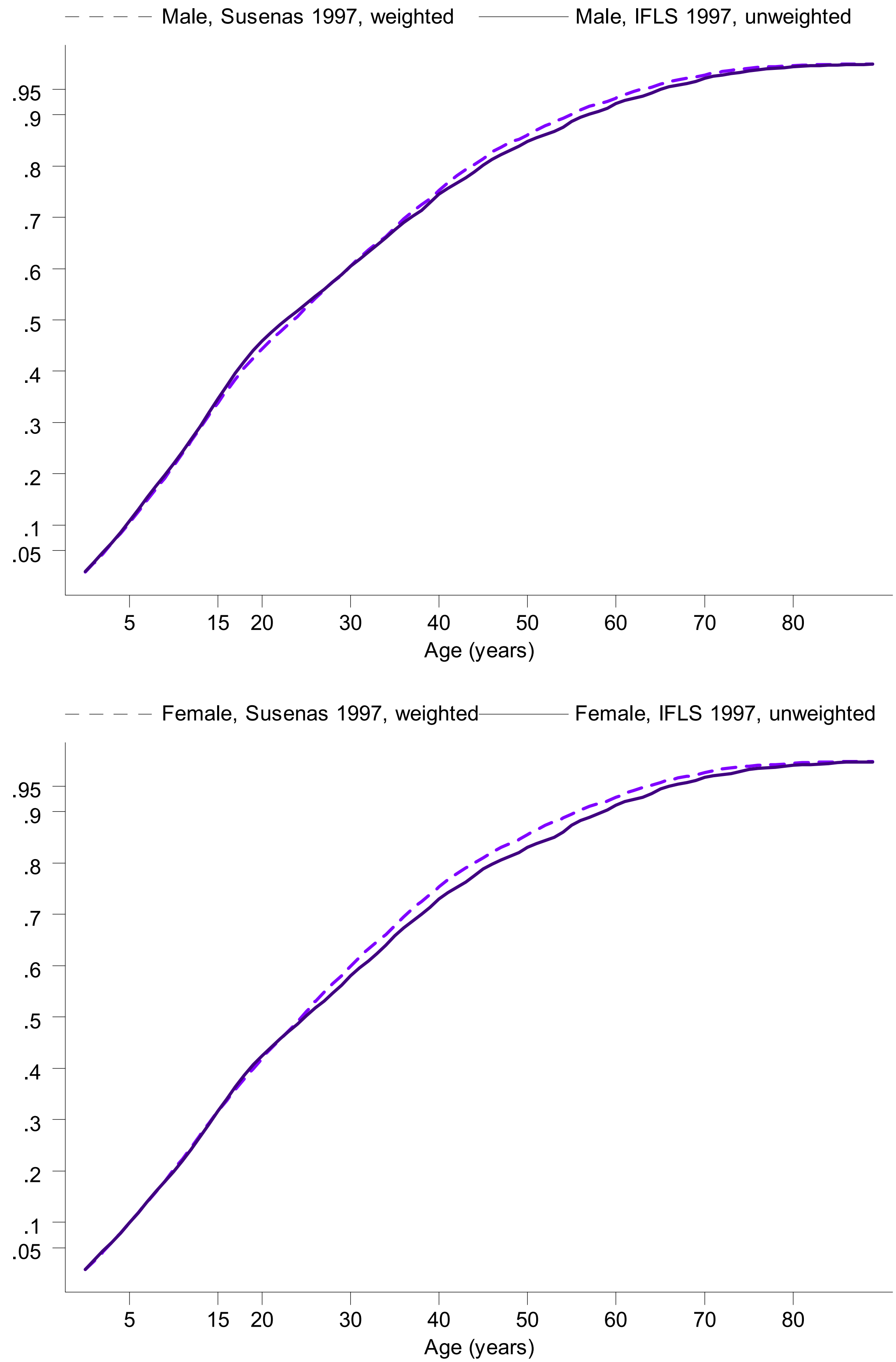
Source: IFLS 2 and IFLS 3

Appendix 1 Figure 1
1997 Age Distributions by Gender: Susenas and IFLS (weighted)



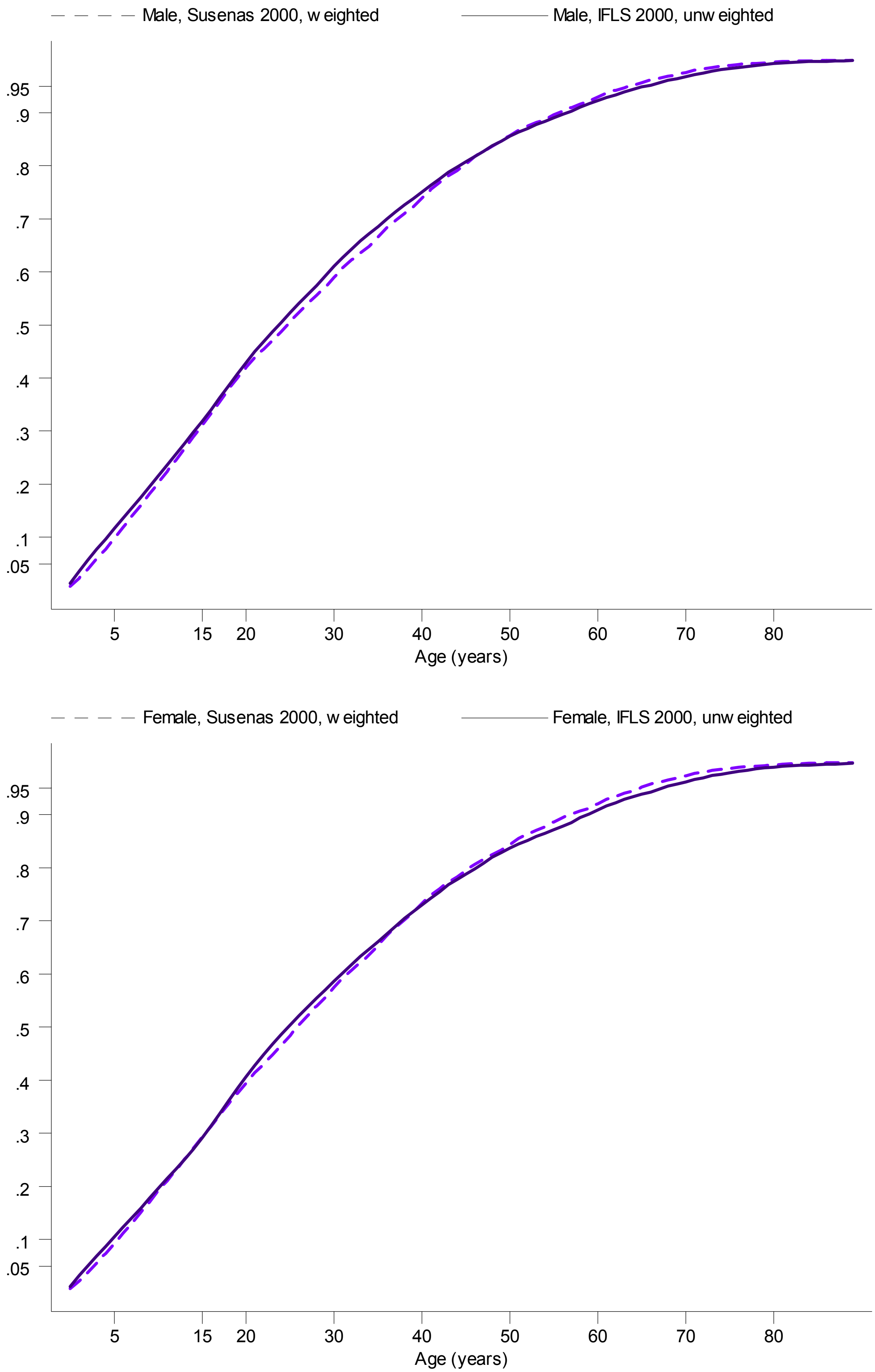
Source: SUSENAS 1997 and IFLS 2

Appendix 1 Figure 2
1997 Age Distributions by Gender: Susenas and IFLS (unweighted)



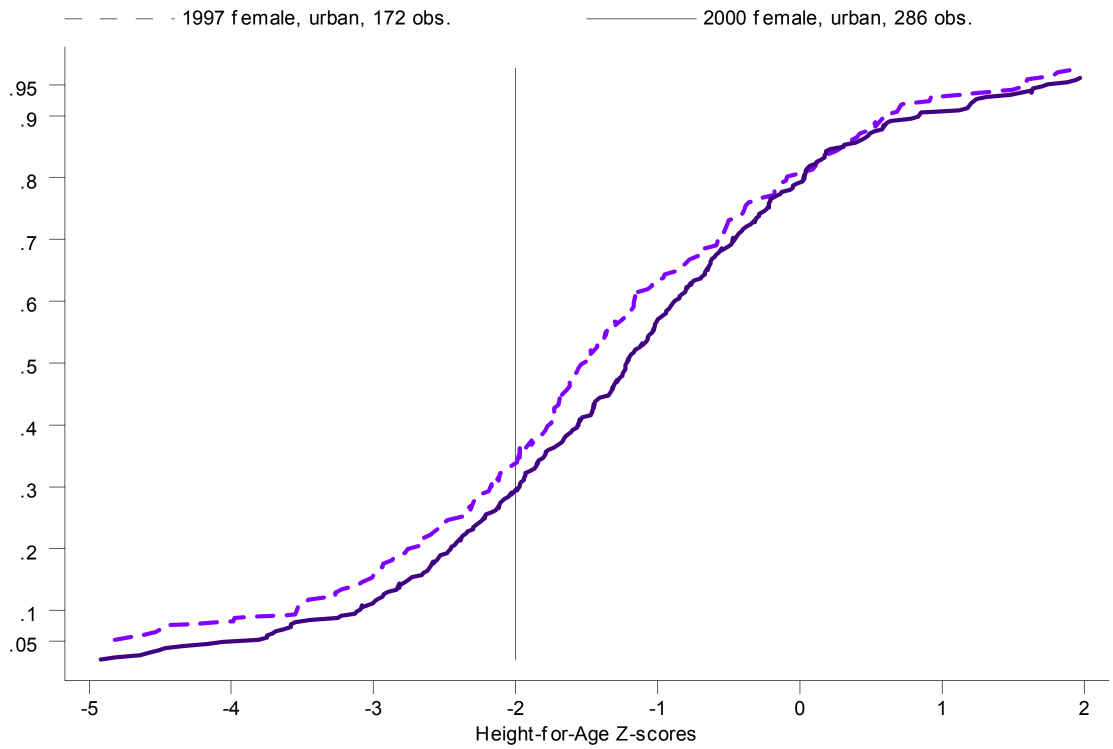
Source: SUSENAS 1997 and IFLS 2

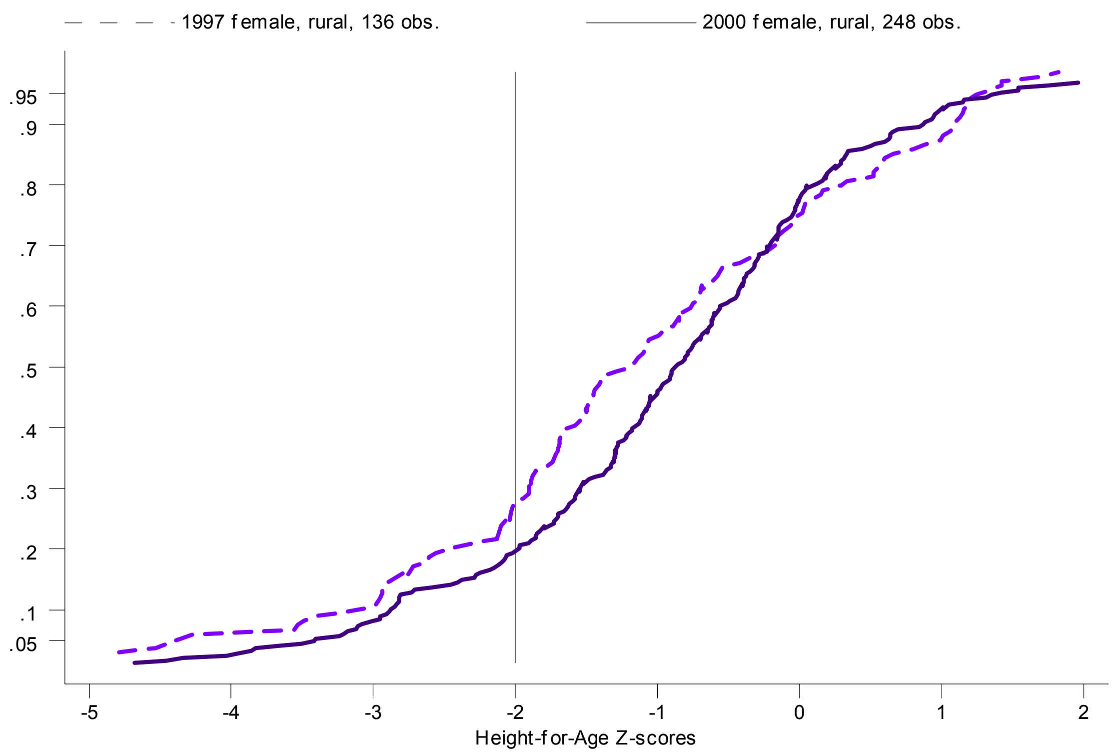
Appendix 1 Figure 3
2000 Age Distributions by Gender: Susenas and IFLS (unweighted)



Source: SUSENAS 2000 and IFLS 3

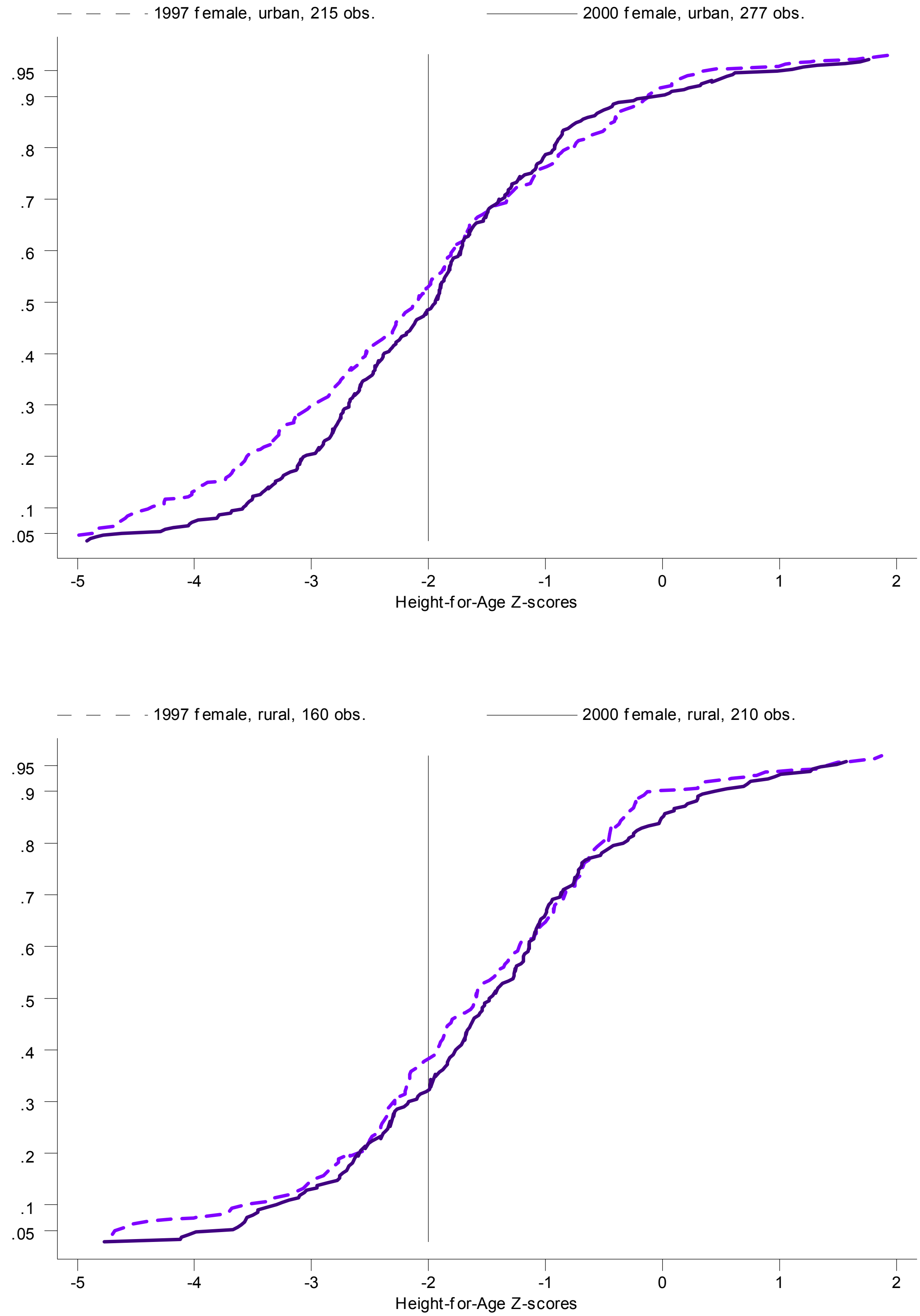
Appendix 2 Figure 1
CDF of Standardized Height-for-Age for Girls 3-17 Months, Urban and Rural





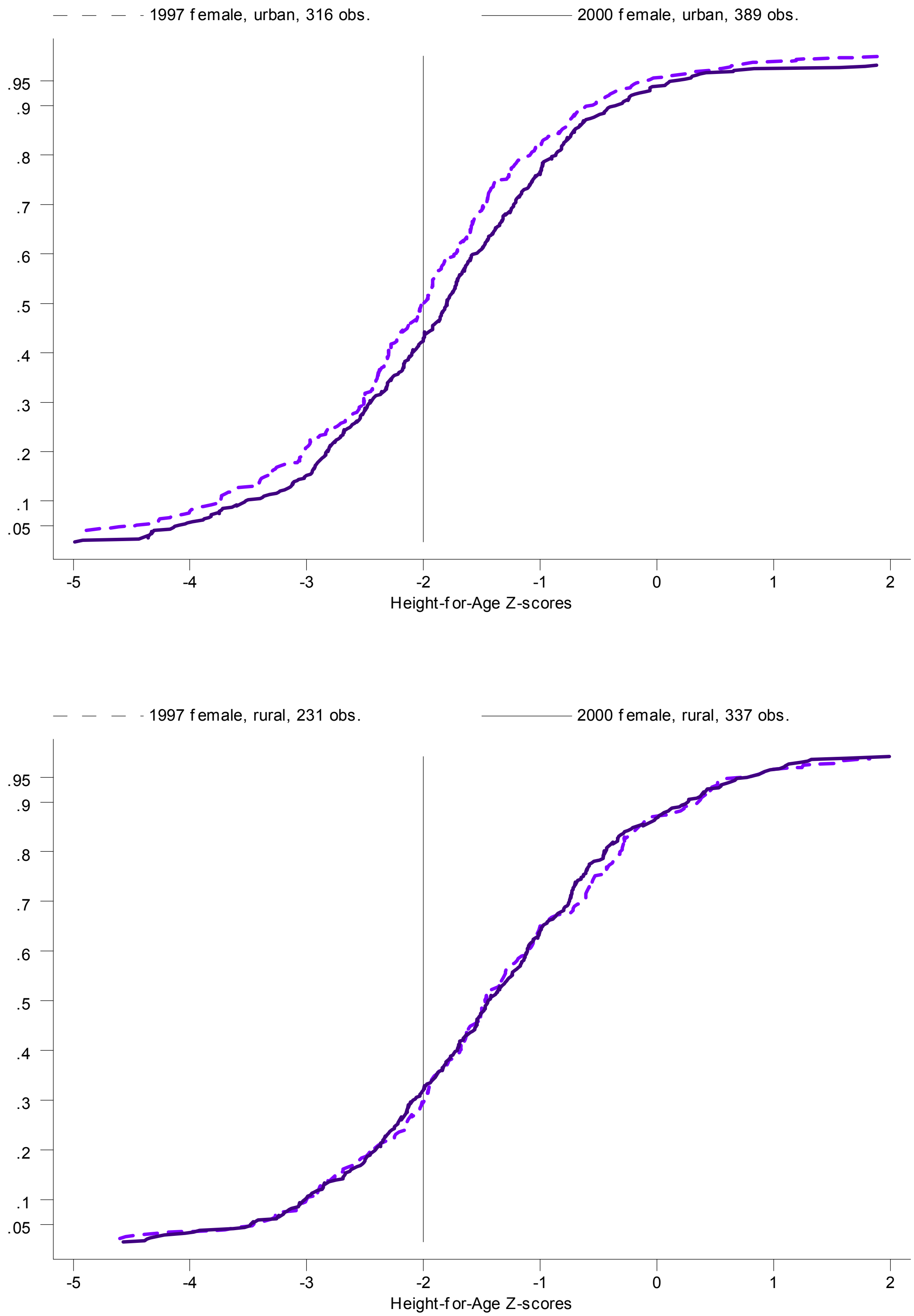
Source: IFLS 2 and IFLS 3

Appendix 2 Figure 2
CDF of Standardized Height-for-Age for Girls 18-35 Months, Urban and Rural



Source: IFLS 2 and IFLS 3

Appendix 2 Figure 3
CDF of Standardized Height-for-Age for Girls 35-59 Months, Urban and Rural



Source: IFLS 2 and IFLS 3

Table 1
Proportion of individuals living in poverty: IFLS, 1997 and 2000

	National			Urban			Rural		
	1997	**2000**	**Difference**	**1997**	**2000**	**Difference**	**1997**	**2000**	**Difference**
All Individuals	16.7	15.2	-1.5 *	12.3	10.7	-1.6 *	20.5	19.3	-1.2 *
	(0.20)	(0.17)	(0.27)	(0.26)	(0.21)	(0.34)	(0.30)	(0.27)	(0.40)
	[33,441]	[42,771]		[15,770]	[20,754]		[17,671]	[22,017]	
Children, ages 0-14 years	20.1	18.8	-1.3 *	14.3	13.5	-0.8	24.4	23.0	-1.5 *
	(0.39)	(0.35)	(0.52)	(0.52)	(0.46)	(0.69)	(0.55)	(0.50)	(0.74)
	[10,690]	[12,632]		[4,546]	[5,536]		[6,144]	[7,096]	
Children, aged 0-59 months	21.5	18.4	-3.1 *	15.6	13.6	-2.0	25.9	22.5	-3.5 *
	(0.74)	(0.59)	(0.94)	(0.99)	(0.77)	(1.25)	(1.04)	(0.85)	(1.34)
	[3,127]	[4,391]		[1,338]	[2,001]		[1,789]	[2,390]	
Children, aged 5-14 years	19.5	19.0	-0.5	13.7	13.4	-0.3	23.8	23.2	-0.6
	(0.46)	(0.43)	(0.63)	(0.61)	(0.57)	(0.84)	(0.65)	(0.62)	(0.89)
	[7,563]	[8,241]		[3,208]	[3,535]		[4,355]	[4,706]	

Notes: Source: IFLS2 and IFLS3. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level. Number of observations are in brackets.

Table 2
Proportion of individuals living in poverty for those who live in splitoff households in 2000: IFLS, 1997 and 2000

	National			Urban			Rural		
	1997	**2000**	**Difference**	**1997**	**2000**	**Difference**	**1997**	**2000**	**Difference**
All Individuals	19.6	11.5	-8.1 *	14.7	7.5	-7.2 *	24.1	15.8	-8.3 *
	(0.42)	(0.40)	(0.58)	(0.55)	(0.45)	(0.71)	(0.63)	(0.65)	(0.91)
	[8,805]	[6,474]		[4,201]	[3,359]		[4,604]	[3,115]	
Children, ages 0-14 years	24.2	14.4	-9.7 *	18.5	9.6	-8.8 *	28.0	18.7	-9.3 *
	(0.85)	(0.86)	(1.21)	(1.22)	(1.06)	(1.62)	(1.16)	(1.32)	(1.75)
	[2,524]	[1,656]		[1,013]	[778]		[1,511]	[878]	
Children, aged 0-59 months	27.2	13.1	-14.1 *	22.5	8.3	-14.2 *	30.5	17.4	-13.2 *
	(1.68)	(1.15)	(2.04)	(2.44)	(1.37)	(2.80)	(2.29)	(1.78)	(2.90)
	[699]	[863]		[293]	[408]		[406]	[455]	
Children, aged 5-14 years	23.0	15.9	-7.1 *	16.8	11.1	-5.7 *	27.1	20.1	-7.0 *
	(0.99)	(1.30)	(1.63)	(1.39)	(1.63)	(2.15)	(1.34)	(1.95)	(2.36)
	[1,825]	[793]		[720]	[370]		[1,105]	[423]	

Notes: Source: IFLS2 and IFLS3. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level. Number of observations are in brackets.

Table 3
Real Per capita Expenditure: IFLS, 1997 and 2000

	National			Urban			Rural		
	1997	**2000**	**Difference**	**1997**	**2000**	**Difference**	**1997**	**2000**	**Difference**
All Individuals									
Mean	274,928	246,334	-28,594 *	366,223	311,033	-55,190 *	193,455	185,347	-8,109 *
Std Error									
	(4,702)	(1,573)	(4,958)	(9,283)	(2,810)	(9,699)	(3,125)	(1,404)	(3,425)
Median	159,520	166,366	6,846	208,077	210,699	2,622	130,920	137,824	6,904
Observations	[33,441]	[42,771]		[15,770]	[20,754]		[17,671]	[22,017]	
Children, aged 0-14 years									
Mean	236,635	209,736	-26,899 *	326,005	267,968	-58,038 *	170,508	164,306	-6,203 **
Std Error									
	(7,497)	(2,461)	(7,890)	(17,029)	(4,860)	(17,709)	(3,117)	(2,040)	(3,725)
Median	142,236	149,373	7,137	185,879	188,347	2,468	121,888	125,390	3,503
Observations	[10,690]	[12,632]		[4,546]	[5,536]		[6,144]	[7,096]	
Children, aged 0-59 months									
Mean	235,461	211,414	-24,047	330,182	268,620	-61,562 **	164,618	163,519	-1,100
Std Error									
	(15,592)	(5,269)	(16,458)	(35,797)	(10,584)	(37,328)	(4,440)	(3,618)	(5,728)
Median	138,242	149,515	11,273	176,662	188,752	12,090	118,709	124,267	5,557
Observations	[3,127]	[4,391]		[1,338]	[2,001]		[1,789]	[2,390]	
Children, aged 5-14 years									
Mean	237,120	208,842	-28,279 *	324,264	267,598	-56,665 *	172,928	164,705	-8,223 **
Std Error									
	(8,410)	(2,521)	(8,780)	(18,963)	(4,695)	(19,536)	(4,000)	(2,467)	(4,700)
Median	144,462	149,373	4,911	189,948	188,252	-1,696	123,790	126,140	2,350
Observations	[7,563]	[8,241]		[3,208]	[3,535]		[4,355]	[4,706]	

Notes: Source: IFLS2 and IFLS3. Mean and median are in December 2000 Rupiahs. Significant at the 5 percent (*) or 10 percent (**) level.

Table 4
Real Per capita Expenditure: Test for First Order Dominance

	All Individuals		**Children, ages 0-14 years**	
	s=1	(sd)	*s*=1	(sd)
First crossing point	524,394	(22,863)	-	-
Points of testing				
40,000	-0.007	(0.001)	-0.003	(0.001)
50,000	-0.011	(0.001)	-0.001	(0.001)
60,000	-0.013	(0.002)	-0.008	(0.002)
70,000	-0.017	(0.002)	-0.012	(0.002)
80,000	-0.017	(0.003)	-0.013	(0.003)
90,000	-0.019	(0.003)	-0.018	(0.003)
100,000	-0.021	(0.003)	-0.024	(0.004)
110,000	-0.016	(0.003)	-0.015	(0.004)
120,000	-0.024	(0.003)	-0.018	(0.004)
130,000	-0.030	(0.004)	-0.019	(0.005)
140,000	-0.031	(0.004)	-0.023	(0.005)
150,000	-0.027	(0.004)	-0.019	(0.005)
Observations				
1997	33,441		15,770	
2000	42,771		20,754	

Notes: Source: IFLS2 and IFLS3. Dash (-) indicates that the curves do not cross. Computation was performed using "DAD: A Software for Distributive Analysis/Analyse Distributive", copyrighted by Jean-Yves Duclos, Abdelkrim Araar, and Carl Fortin.

Table 5
Child poverty: Linear Probability Models for 1997 and 2000

	Boys		Girls	
	1997	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	-0.013	0.001	-0.014	0.001
	(9.82) **	(0.48)	(10.28) **	(0.77)
Father's education	-0.012	0.001	-0.011	-0.001
	(8.47) **	(0.80)	(7.53) **	(0.31)
0-59 months	0.000	0.000	0.000	0.000
	(0.33)	(0.55)	(1.22)	(0.06)
5-14 years	0.000	0.000	0.000	0.000
	(0.04)	(0.00)	(1.33)	(1.76)
Rural	0.050	0.005	0.045	0.000
	(4.30) **	(0.35)	(3.78) **	(0.02)
North Sumatera	0.034	-0.019	0.004	0.012
	(1.29)	(0.54)	(0.14)	(0.33)
West Sumatera	-0.062	0.016	-0.078	0.033
	(2.09) *	(0.41)	(2.55) *	(0.79)
South Sumatera	0.129	-0.094	0.149	-0.116
	(4.38) **	(2.33) *	(4.82) **	(2.75) **
Lampung	0.087	-0.082	0.085	-0.069
	(2.74) **	(1.89)	(2.65) **	(1.55)
West Java	0.018	0.055	-0.010	0.040
	(0.75)	(1.71)	(0.44)	(1.22)
Central Java	0.054	-0.022	0.007	0.011
	(2.13) *	(0.64)	(0.28)	(0.32)
DI Yogyakarta	0.012	0.015	0.010	-0.001
	(0.36)	(0.34)	(0.32)	(0.01)
East Java	0.099	-0.019	0.102	-0.069
	(3.98) **	(0.57)	(4.06) **	(2.01) *
Bali	0.059	-0.034	0.070	-0.022
	(1.85)	(0.78)	(2.14) *	(0.50)
West Nusa Tenggara	0.021	0.130	0.020	0.134
	(0.73)	(3.38) **	(0.72)	(3.44) **
South Kalimantan	0.018	-0.057	-0.003	-0.050
	(0.54)	(1.27)	(0.08)	(1.11)
South Sulawesi	0.232	-0.097	0.122	-0.055
	(7.96) **	(2.44) *	(4.05) **	(1.35)
Constant	0.233	-0.024	0.286	-0.016
	(8.53) **	(0.67)	(10.42) **	(0.42)
F-test of joint significance of the interaction variables (p-values)		0.0000		0.0000
Observations	11,862		11,460	
Adjusted R-squared	0.07		0.06	

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education are included in the regressions but are not reported on the table.

Table 6
In- and out of poverty transition matrix of children aged 3-14 years in 2000: IFLS, 1997 and 2000

	National			Urban			Rural		
	In poverty	Out of poverty	Total	In poverty	Out of poverty	Total	In poverty	Out of poverty	Total
In Poverty	9.6	11.0	20.7	7.0	7.7	14.7	11.5	13.3	24.8
			(1,614)			(471)			(1,143)
Out of Poverty	9.8	69.5	79.3	7.2	78.1	85.3	11.7	63.5	75.2
			(6,191)			(2,733)			(3,458)
Total	19.5	80.5	100.0	14.2	85.8	100.0	23.2	76.8	100.0
	(1,521)	(6,284)	(7,805)	(454)	(2,750)	(3,204)	(1,067)	(3,534)	(4,601)

Notes: Source: IFLS2 and IFLS3. Number of observations in parentheses.

Table 7
Child Poverty Transitions, 1997-2000:
Multinomial Logit Model

	Poor in 1997 Not poor in 2000	Not poor in 97 Poor in 2000	Not poor in 2000 Not poor in 2000
Mother's education	0.070	0.067	0.146
	(4.44)**	(4.19)**	(11.39)**
Father's education	0.039	0.025	0.124
	(2.38)*	(1.49)	(9.43)**
Boys	-0.198	-0.155	-0.064
	(1.97)*	(1.49)	(0.80)
0-59 months (x 10^{-1})	-0.044	-0.030	0.001
	(1.30)	(0.85)	(0.04)
5-14 years (x 10^{-1})	0.002	0.004	0.002
	(0.11)	(0.19)	(0.12)
Rural	0.140	0.019	-0.329
	(1.18)	(0.16)	(3.49)**
North Sumatera	0.835	1.004	0.122
	(2.39)*	(2.79)**	(0.47)
West Sumatera	0.696	1.583	1.221
	(1.42)	(3.40)**	(3.32)**
South Sumatera	0.549	-0.333	-0.767
	(1.61)	(0.86)	(3.07)**
Lampung	0.702	0.277	-0.261
	(1.94)	(0.71)	(0.98)
West Java	0.573	1.088	-0.041
	(1.81)	(3.34)**	(0.18)
Central Java	0.533	0.552	-0.062
	(1.62)	(1.61)	(0.27)
DI Yogyakarta	0.862	1.069	0.220
	(2.05)*	(2.50)*	(0.68)
East Java	0.488	0.071	-0.615
	(1.54)	(0.21)	(2.75)**
Bali	0.754	0.552	-0.284
	(2.05)*	(1.41)	(1.03)
West Nusa Tenggara	-0.274	0.929	-0.582
	(0.79)	(2.74)**	(2.46)*
South Kalimantan	0.757	0.282	0.341
	(1.84)	(0.62)	(1.10)
South Sulawesi	0.474	0.128	-0.999
	(1.43)	(0.36)	(4.15)**
Constant	-0.468	-0.628	1.498
	(1.43)	(1.84)	(6.37)**
Observations	7,805		
Pseudo R-squared	0.07		

Notes: Source IFLS2 and IFLS3. The base category is being poor in both years. Absolute values of t-statistics in parentheses. Significant at 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education are included in the regressions but are not reported in the table.

Table 8
Child Standardized Height-for-Age (Z-score)

	Male			Female		
	1997	**2000**	**Change**	**1997**	**2000**	**Change**
Age 3-17 months						
Mean	-1.30	-1.09	0.20	-1.33	-1.01	0.32
	(0.110)	(0.073)	(0.132)	(0.100)	(0.077)	(0.126)
% z-score ≤ -2	34.8	28.0	-6.8	30.8	24.5	-6.3
	(2.74)	(1.84)	(3.30)	(2.65)	(1.86)	(3.23)
# observations	302	597		305	534	
Age 18-35 months						
Mean	-1.80	-1.57	0.23	-1.89	-1.66	0.24
	(0.097)	(0.067)	(0.118)	(0.095)	(0.084)	(0.127)
% z-score ≤ -2	45.8	39.8	-6.0	46.5	41.3	-5.3
	(2.60)	(2.11)	(3.35)	(2.58)	(2.23)	(3.41)
# observations	367	540		374	487	
Age 36-59 months						
Mean	-1.90	-1.58	0.32	-1.80	-1.62	0.18
	(0.059)	(0.053)	(0.080)	(0.062)	(0.055)	(0.083)
% z-score ≤-2	47.5	35.9	-11.5	41.6	37.9	-3.7
	(2.09)	(1.80)	(2.76)	(2.12)	(1.80)	(2.78)
# observations	569	710		543	726	

Notes: Source: IFLS 2 and IFLS 3. Standard errors in parentheses.

Table 9
Child Height-for-Age First and Second Order Stochastic Dominance: First crossing point and the difference between curves (2000 - 1997)

	Male				Female			
	s=1	(sd)	s=2	(sd)	s=1	(sd)	s=2	(sd)
Age 3-17 months								
First crossing point	-0.817	(0.385)	-	-	-0.211	(0.451)	-	-
Points of testing								
-4.0	-0.051	(0.017)	-0.073	(0.026)	-0.031	(0.017)	-0.046	(0.022)
-3.5	-0.057	(0.021)	-0.099	(0.032)	-0.034	(0.020)	-0.060	(0.029)
-3.0	-0.053	(0.024)	-0.130	(0.040)	-0.039	(0.023)	-0.079	(0.037)
-2.5	-0.041	(0.029)	-0.155	(0.050)	-0.056	(0.029)	-0.103	(0.046)
-2.0	-0.068	(0.033)	-0.178	(0.060)	-0.063	(0.032)	-0.128	(0.057)
-1.5	-0.052	(0.035)	-0.203	(0.071)	-0.106	(0.035)	-0.168	(0.068)
-1.0	-0.042	(0.035)	-0.225	(0.082)	-0.591	(0.028)	-0.219	(0.079)
# observations	1997: 302				1997: 305			
	2000: 597				2000: 534			
Age 18-35 months								
First crossing point	-0.4037	(0.695)	-	-	-1.172	(0.697)	-	-
Points of testing								
-4.0	-0.040	(0.017)	-0.060	(0.030)	-0.045	(0.019)	-0.053	(0.031)
-3.5	-0.061	(0.021)	-0.085	(0.037)	-0.056	(0.024)	-0.080	(0.038)
-3.0	-0.101	(0.027)	-0.128	(0.044)	-0.060	(0.028)	-0.108	(0.047)
-2.5	-0.096	(0.031)	-0.177	(0.053)	-0.034	(0.032)	-0.131	(0.057)
-2.0	-0.060	(0.033)	-0.218	(0.063)	-0.050	(0.034)	-0.149	(0.067)
-1.5	-0.033	(0.033)	0.657	(0.066)	-0.016	(0.034)	-0.165	(0.078)
-1.0	-0.030	(0.031)	0.812	(0.075)	0.024	(0.031)	-0.165	(0.087)
# observations	1997: 367				1997: 374			
	2000: 540				2000: 487			
Age 36-59 months								
First crossing point	-	-	-	-	-	-	-	-
Points of testing								
-4.0	-0.020	(0.011)	-0.022	(0.018)	-0.015	(0.013)	-0.028	(0.020)
-3.5	-0.042	(0.017)	-0.041	(0.022)	-0.016	(0.016)	-0.036	(0.025)
-3.0	-0.053	(0.020)	-0.066	(0.028)	-0.031	(0.020)	-0.048	(0.031)
-2.5	-0.096	(0.024)	-0.100	(0.036)	-0.023	(0.025)	-0.061	(0.038)
-2.0	-0.117	(0.028)	-0.153	(0.044)	-0.038	(0.028)	-0.076	(0.046)
-1.5	-0.080	(0.028)	-0.203	(0.052)	-0.055	(0.028)	-0.099	(0.054)
-1.0	-0.066	(0.025)	-0.237	(0.060)	-0.040	(0.025)	-0.126	(0.062)
# observations	1997: 569				1997: 543			
	2000: 710				2000: 726			

Notes: Source: IFLS 2 and IFLS 3.
Dash (-) indicates that the curves do not cross. s=1 refers to the first order stochastic dominance and s=2 refers to the second order stochastic dominance. s=1 is the cumulative distribution function. Formulation for the standard deviation is from Russel Davidson and Jean-Yves Duclos (2000), "Statistical Inference for Stochastic Dominance and for the Measurement of Poverty and Inequality", Econometrica v86 n6. Computation for the table above was performed using " DAD : A Software for Distributive Analysis/Analyse Distributive", copyrighted by Jean-Yves Duclos, Abdelkrim Araar, and Carl Fortin.

Table 10
Child Standardized Height-for-Age Regressions

	Male		Female	
	1997	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	0.020	0.010	0.045	-0.018
	(1.53)	(0.59)	(3.36)**	(1.06)
Father's education	0.040	-0.004	0.017	0.003
	(3.18)**	(0.27)	(1.32)	(0.18)
HH in 97 in poverty	-0.183	-0.049	-0.308	0.099
	(1.60)	(0.24)	(2.62)**	(0.48)
Rural	-0.380	0.135	-0.285	0.033
	(3.81)**	(1.04)	(2.77)**	(0.24)
3-17.9 months	-0.094	-0.001	-0.098	-0.006
	(5.96)**	(0.03)	(6.06)**	(0.28)
18-35.9 months	0.012	0.023	0.018	-0.015
	(1.19)	(1.72)	(1.82)	(1.11)
36-59.9 months	-0.006	-0.008	-0.002	-0.000
	(0.77)	(0.77)	(0.23)	(0.04)
North Sumatera	-0.552	-0.078	-0.565	0.387
	-1.101	(0.26)	(2.28)*	(1.19)
West Sumatera	-0.052	-0.216	-0.649	0.676
	(0.20)	(0.64)	(2.40)*	(1.89)
South Sumatera	-0.344	0.203	-0.469	0.362
	(1.21)	(0.57)	(1.59)	(0.97)
Lampung	-0.360	0.293	-0.145	0.328
	(1.33)	(0.83)	(0.51)	(0.89)
West Java	-0.431	0.483	-0.290	0.651
	(2.08)*	(1.85)	(1.38)	(2.42)*
Central Java	0.095	-0.156	0.169	-0.005
	(0.42)	(0.55)	(0.76)	(0.02)
DI Yogyakarta	-0.145	0.007	-0.072	0.190
	(0.53)	(0.02)	(0.26)	(0.51)
East Java	-0.060	-0.048	-0.174	0.319
	(0.27)	(0.17)	(0.77)	(1.09)
Bali	0.125	-0.404	0.137	-0.218
	(0.44)	(1.12)	(0.47)	(0.59)
West Nusa Tenggara	(2.41)*	0.289	-1.214	0.384
	(4.41)**	(0.90)	(4.83)**	(1.17)
South Kalimantan	-0.087	-0.047	-0.447	0.223
	(0.31)	(0.13)	(1.61)	(0.61)
South Sulawesi	0.260	-0.552	-0.545	0.426
	(0.89)	(1.56)	(1.89)	(1.17)
Constant	-0.197	-0.313	-0.148	0.227
	(0.67)	(0.83)	(0.50)	(0.57)
F-test of joint significance of the interaction variables (p-values)		0.0597		0.2324
Observations	3085		2969	
R-squared	0.13		0.14	

Notes: Source: IFLS 2 and IFLS 3. Absolute value of t-statistics in parentheses. * significant at 5% level; ** significant at 1% level

Table 11
Child Standardized Weight-for-Height (Z-score)

	Male 1997	Male 2000	Male Change	Female 1997	Female 2000	Female Change
Age 3-17 months						
Mean	-0.25	-0.33	-0.08	-0.02	-0.26	-0.24
	(0.112)	(0.075)	(0.135)	(0.106)	(0.073)	(0.129)
% z-score ≦ -2	13.9	11.9	-2.0	7.9	10.7	2.8
	(1.99)	(1.33)	(2.39)	(1.54)	(1.34)	(2.04)
# observations	302	597		305	534	
Age 18-35 months						
Mean	-0.77	-0.78	0.00	-0.61	-0.80	-0.20
	(0.075)	(0.057)	(0.094)	(0.085)	(0.061)	(0.105)
% z-score ≦ -2	12.3	13.3	1.1	13.1	13.8	0.7
	(1.71)	(1.46)	(2.25)	(1.75)	(1.56)	(2.34)
# observations	367	540		374	487	
Age 36-59 months						
Mean	-0.64	-0.62	0.03	-0.66	-0.58	0.08
	(0.057)	(0.047)	(0.074)	(0.056)	(0.045)	(0.072)
% z-score ≦ -2	8.4	7.0	-1.4	9.6	7.6	-2.0
	(1.17)	(0.96)	(1.51)	(1.26)	(0.98)	(1.60)
# observations	569	710		543	726	

Notes: Source: IFLS 2 and IFLS 3. Standard errors in parentheses.

Table 12
Child Weight-for-Height First and Second Order Stochastic Dominance: First crossing point and the difference between curves (2000 – 1997)

	Male				Female			
	s=1	(sd)	s=2	(sd)	s=1	(sd)	s=2	(sd)
Age 3-17 months								
First crossing point	-3.215	(0.403)	-1.131	(3.649)	-0.708	(1.874)	-2.9075	(1.694)
Points of testing								
-4.0	0.010	(0.010)	0.024	(0.018)	0.003	(0.007)	-0.008	(0.015)
-3.5	0.009	(0.011)	0.029	(0.021)	0.006	(0.009)	-0.006	(0.018)
-3.0	-0.018	(0.015)	0.029	(0.026)	0.015	(0.012)	-0.001	(0.022)
-2.5	-0.022	(0.019)	0.019	(0.031)	0.030	(0.015)	0.010	(0.026)
-2.0	-0.020	(0.024)	0.007	(0.038)	0.029	(0.020)	0.026	(0.032)
-1.5	-0.012	(0.030)	0.005	(0.047)	0.051	(0.027)	0.042	(0.039)
-1.0	-0.029	(0.033)	-0.003	(0.056)	0.020	(0.033)	0.061	(0.048)
# observations	1997:302				1997:305			
	2000:597				2000:534			
Age 18-35 months								
First crossing point	-3.8313	(0.408)	-3.399	(0.774)	-2.545	(0.792)	-2.343	(12.002)
Points of testing								
-4.0	0.006	(0.006)	0.003	(0.005)	0.002	(0.009)	0.009	(0.010)
-3.5	-0.012	(0.009)	0.001	(0.008)	-0.002	(0.011)	0.008	(0.013)
-3.0	-0.009	(0.014)	-0.002	(0.013)	-0.018	(0.013)	0.004	(0.018)
-2.5	-0.001	(0.017)	-0.004	(0.019)	0.002	(0.017)	0.000	(0.024)
-2.0	0.010	(0.023)	-0.001	(0.026)	0.007	(0.023)	0.000	(0.030)
-1.5	-0.017	(0.030)	-0.004	(0.035)	0.053	(0.030)	0.020	(0.039)
-1.0	-0.043	(0.034)	-0.019	(0.045)	0.022	(0.034)	0.044	(0.049)
# observations	1997:367				1997:374			
	2000:540				2000:487			
Age 36-59 months								
First crossing point	-1.1537	(0.381)	-	-	-3.398	(0.375)	-2.692	(0.822)
Points of testing								
-4.0	0.000	(0.005)	-0.002	(0.003)	0.003	(0.005)	0.003	(0.006)
-3.5	-0.004	(0.006)	-0.002	(0.006)	0.001	(0.005)	0.005	(0.008)
-3.0	-0.008	(0.007)	-0.004	(0.008)	-0.007	(0.008)	0.003	(0.010)
-2.5	-0.007	(0.010)	-0.007	(0.011)	-0.016	(0.011)	-0.003	(0.013)
-2.0	-0.016	(0.015)	-0.011	(0.016)	-0.019	(0.016)	-0.011	(0.017)
-1.5	-0.034	(0.022)	-0.023	(0.021)	-0.041	(0.023)	-0.031	(0.023)
-1.0	0.012	(0.027)	-0.028	(0.029)	-0.052	(0.027)	-0.049	(0.031)
# observations	1997:569				1997:543			
	2000:710				2000:726			

Notes: Source: IFLS 2 and IFLS 3.
Dash (-) indicates that the curves do not cross. s=1 refers to the first order stochastic dominance and s=2 refers to the second order stochastic dominance. s=1 is the cumulative distribution function. Formulation for the standard deviation is from Russel Davidson and Jean-Yves Duclos (2000), "Statistical Inference for Stochastic Dominance and for the Measurement of Poverty and Inequality", Econometrica v86 n6. Computation for the table above was performed using " DAD : A Software for Distributive Analysis/Analyse Distributive", copyrighted by Jean-Yves Duclos, Abdelkrim Araar, and Carl Fortin.

Table 13
Child Standardized Weight-for-Height Regressions

	Male		Female	
	1997	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	0.017	-0.005	-0.002	-0.003
	(1.35)	(0.34)	(0.18)	(0.22)
Father's education	-0.018	0.026	-0.013	0.031
	(1.50)	(1.70)	(1.08)	(2.01)*
HH in 97 in poverty	-0.138	0.118	-0.030	0.011
	(1.24)	(0.59)	(0.28)	(0.06)
Rural	0.072	-0.058	-0.019	0.160
	(0.75)	(0.47)	(0.20)	(1.31)
3-17.9 months	-0.094	0.014	-0.089	0.012
	(6.19)**	(0.73)	(5.99)**	(0.63)
18-35.9 months	0.025	-0.006	0.002	-0.001
	(2.64)**	(0.47)	(0.27)	(0.10)
36-59.9 months	-0.009	0.004	0.001	0.011
	(1.17)	(0.39)	(0.10)	(1.05)
North Sumatera	0.089	-0.238	-0.317	0.333
	(0.40)	(0.84)	(1.40)	(1.12)
West Sumatera	0.169	-0.451	-0.539	0.595
	(0.67)	(1.40)	(2.17)*	(1.81)
South Sumatera	0.209	-0.290	-0.334	0.444
	(0.77)	(0.84)	(1.23)	(1.30)
Lampung	0.235	-0.658	-0.538	0.386
	(0.91)	(1.94)	(2.08)*	(1.14)
West Java	0.361	-0.536	0.264	-0.304
	(1.81)	(2.13)*	(1.37)	(1.23)
Central Java	-0.067	-0.074	-0.440	0.459
	(0.31)	(0.27)	(2.16)*	(1.73)
DI Yogyakarta	0.594	-0.615	-0.238	0.281
	(2.25)*	(1.79)	(0.92)	(0.82)
East Java	0.339	-0.333	-0.054	-0.070
	(1.56)	(1.21)	(0.26)	(0.26)
Bali	0.371	-0.312	-0.265	0.600
	(1.36)	(0.90)	(0.99)	(1.76)
Weet Nusa Tenggara	0.140	0.029	0.062	0.203
	(0.58)	(0.09)	(0.27)	(0.67)
South Kalimantan	-0.057	-0.365	-0.584	0.322
	(0.21)	(1.04)	(2.29)*	(0.96)
South Sulawesi	-0.012	-0.021	-0.415	0.456
	(0.04)	(0.06)	(1.57)	(1.37)
Constant	0.528	-0.015	1.189	-0.666
	(1.86)	(0.04)	(4.35)**	(1.84)
F-test of joint significance of the interaction variables (p-values)		0.3670		0.0031
Observations	3085		2969	
R-squared	0.05		0.07	

Notes: Source: IFLS 2 and IFLS 3.
Absolute value of t-statistics in parentheses. * significant at 5% level; ** significant at 1% level

Table 14
Child Hemoglobin Level

	Male 1997	Male 2000	Male Change	Female 1997	Female 2000	Female Change
Age 12-59 months						
Mean	10.89	10.74	-0.15	10.96	10.88	-0.08
	(0.045)	(0.039)	(0.060)	(0.048)	(0.040)	(0.063)
% < 11.1	50.7	56.8	6.1	46.8	52.5	5.8
	(1.61)	(1.34)	(2.09)	(1.67)	(1.38)	(2.17)
# observations	967	1368		894	1310	
Age 5-14 years						
Mean	12.24	12.17	-0.06	12.14	12.11	-0.03
	(0.026)	(0.023)	(0.035)	(0.024)	(0.022)	(0.033)
% < 11.9	38.6	40.4	1.8	40.6	39.6	-1.0
	(0.85)	(0.82)	(1.18)	(0.87)	(0.83)	(1.20)
# observations	3307	3578		3216	3434	

Notes: Source: IFLS 2 and IFLS 3. Test using hemocue. Units are in g/dL. Standard errors in parentheses

Table 15
Hemoglobin Level First and Second Order Stochastic Dominance:
First crossing point and the difference between curves (2000 - 1997)

	Male				Female			
	s=1	(sd)	s=2	(sd)	s=1	(sd)	s=2	(sd)
Age 12-59 months								
First crossing point	-	-	8.306	(1.105)	9.292	(0.380)	10.329	(0.945)
Points of testing								
8.0	0.004	(0.008)	-0.002	(0.011)	-0.010	(0.008)	-0.013	(0.010)
9.0	0.018	(0.013)	0.008	(0.018)	-0.006	(0.013)	-0.024	(0.016)
10.0	0.068	(0.018)	0.036	(0.028)	0.036	(0.018)	-0.012	(0.027)
11.0	0.060	(0.021)	0.094	(0.041)	0.058	(0.022)	0.036	(0.041)
12.0	0.038	(0.016)	0.126	(0.052)	0.022	(0.017)	0.064	(0.053)
13.0	0.005	(0.008)	0.148	(0.057)	0.021	(0.009)	0.081	(0.059)
# observations	1997:967				1997:894			
	2000:1368				2000:1310			
Age 5-14 years								
First crossing point	8.345	(6.526)	10.076	(0.833)	12.037	(0.277)	-	-
Points of testing								
8.0	0.000	(0.002)	0.006	(0.003)	-0.003	(0.002)	-0.002	(0.004)
9.0	-0.002	(0.003)	0.006	(0.005)	-0.003	(0.003)	-0.005	(0.005)
10.0	-0.009	(0.006)	0.001	(0.007)	-0.002	(0.006)	-0.008	(0.008)
11.0	-0.002	(0.009)	-0.016	(0.012)	-0.002	(0.010)	-0.017	(0.012)
12.0	0.026	(0.012)	-0.009	(0.019)	-0.004	(0.012)	-0.026	(0.019)
13.0	0.040	(0.011)	0.017	(0.027)	0.027	(0.010)	-0.004	(0.027)
# observations	1997:3307				1997:3216			
	2000:3578				2000:3434			

Notes: Source: IFLS 2 and IFLS 3.
Dash (-) indicates that the curves do not cross. s=1 refers to the first order stochastic dominance and s=2 refers to the second order stochastic dominance. s=1 is the cumulative distribution function. Formulation for the standard deviation is from Russel Davidson and Jean-Yves Duclos (2000), "Statistical Inference for Stochastic Dominance and for the Measurement of Poverty and Inequality", Econometrica v86 n6. Computation for the table above was performed using " DAD : A Software for Distributive Analysis/Analyse Distributive", copyrighted by Jean-Yves Duclos, Abdelkrim Araar, and Carl Fortin.

Table 16
Child Hemoglobin Level Regressions

	Male		Female	
	1997	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	0.027	-0.008	0.025	-0.024
	(2.10)*	(0.51)	(1.86)	(1.39)
Father's education	-0.005	0.019	0.010	0.022
	(0.37)	(1.17)	(0.72)	(1.24)
HH in 97 in poverty	-0.237	-0.089	-0.212	0.365
	(2.11)*	(0.47)	(1.77)	(1.87)
Rural	0.018	0.028	-0.174	0.191
	(0.18)	(0.22)	(1.65)	(1.40)
3-17.9 months	-0.030	0.142	0.096	-0.004
	(0.91)	(3.09)**	(2.57)*	(0.08)
18-35.9 months	0.041	-0.004	0.029	0.009
	(4.35)**	(0.33)	(2.86)**	(0.65)
36-59.9 months	0.016	-0.004	0.015	-0.009
	(2.31)*	(0.37)	(1.89)	(0.94)
North Sumatera	0.011	0.170	0.722	-0.675
	0.170	(0.57)	(2.76)**	(2.03)*
West Sumatera	0.815	-0.720	0.903	-0.680
	(3.23)**	(2.17)*	(3.30)**	(1.91)
South Sumatera	-0.447	-0.319	0.181	-0.924
	(1.67)	(0.90)	(0.61)	(2.44)*
Lampung	-0.521	0.168	-0.171	-0.112
	(2.00)*	(0.49)	(0.59)	(0.30)
West Java	-0.260	0.154	0.223	-0.312
	(1.29)	(0.59)	(1.02)	(1.14)
Central Java	-0.195	0.391	0.409	-0.402
	(0.89)	(1.40)	(1.77)	(1.37)
DI Yogyakarta	0.236	-0.307	1.227	-1.279
	(0.88)	(0.88)	(4.20)**	(3.41)**
East Java	-0.012	-0.244	0.504	-0.636
	(0.06)	(0.87)	(2.17)*	(2.15)*
Bali	-0.141	0.240	0.621	-0.607
	(0.49)	(0.65)	(1.84)	(1.48)
Weet Nusa Tenggara	(0.05)	-0.508	1.022	-1.386
	(0.68)	(1.56)	(3.99)**	(4.07)**
South Kalimantan	-0.245	0.486	0.385	-0.279
	(0.90)	(1.37)	(1.32)	(0.75)
South Sulawesi	-0.904	1.169	0.354	-0.318
	(2.74)**	(3.04)**	(1.10)	(0.82)
Constant	10.818	-2.691	8.245	0.264
	(19.21)**	(3.46)**	(12.83)**	(0.29)
F-test of joint significance of the interaction variables (p-values)		0.0000		0.0041
Observations	2311		2173	
R-squared	0.14		0.11	

Notes: Source: IFLS 2 and IFLS 3. Absolute value of t-statistics in parentheses. * significant at 5% level; ** significant at 1% level

Table 17
Parent- and nurse-reported general health: IFLS, 1997 and 2000

	All Children, aged 0-59 months						All Children, aged 5-14 years					
	Boys			Girls			Boys			Girls		
	1997	**2000**	**Change**	**1997**	**2000**	**Change**	**1997**	**2000**	**Change**	**1997**	**2000**	**Change**
% self-reported in poor health now	10.3	14.2	3.9 *	11.0	12.4	1.5	4.9	6.5	1.5 *	5.1	7.2	2.1 *
	(0.83)	(0.77)	(1.14)	(0.86)	(0.75)	(1.14)	(0.37)	(0.40)	(0.55)	(0.38)	(0.43)	(0.58)
Nurse evaluation: [a] mean	6.0	6.0	-0.1 *	6.0	5.9	-0.1 **	6.1	6.1	-0.1 *	6.1	6.1	0.0 **
	(0.03)	(0.02)	(0.04)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
% with evaluation score ≤5	31.1	34.4	3.3 *	33.2	36.3	3.1 **	30.1	31.4	1.2	31.0	33.0	2.1 **
	(1.27)	(1.05)	(1.65)	(1.30)	(1.09)	(1.70)	(0.79)	(0.76)	(1.09)	(0.80)	(0.79)	(1.12)
	1,338	2,037		1,315	1,930		3,396	3,736		3,301	3,588	

Notes: Source: IFLS2 and IFLS3. [a] Nurse evaluation are reported by nurse who collects physical assessment. The scale is from 1 (the most unhealthy) to 9 (the most healthy).

Table 18
Parent- and nurse-reported general health: Linear Probability Models of poor health

	Boys			
	Parent or self-reported		Nurse evaluation	
	1997	Change in 2000	1997	Change in 2000
Mother's education	0.002	-0.003	-0.007	0.001
	(1.52)	(2.44) *	(4.48) **	(0.63)
Father's education	0.000	-0.002	-0.007	0.000
	(0.38)	(1.71)	(4.54) **	(0.00)
HH in 1997 in poverty	0.016	-0.030	0.104	-0.066
	(1.58)	(2.08) *	(6.96) **	(3.17) **
0-17 months	0.003	0.000	0.003	0.002
	(1.70)	(0.08)	(1.15)	(0.64)
18-35 months	-0.002	-0.003	0.001	-0.004
	(1.37)	(1.66)	(0.36)	(1.40)
36-59 months	-0.001	0.000	0.000	0.002
	(1.49)	(0.11)	(0.33)	(0.95)
5-14 years	0.000	0.000	0.000	0.000
	(3.16) **	(0.66)	(2.51) *	(1.17)
Rural	-0.006	0.010	-0.023	0.034
	(0.69)	(0.87)	(1.85)	(1.99) *
North Sumatera	-0.042	-0.005	-0.419	0.679
	(2.10) *	(0.18)	(14.51) **	(17.31) **
West Sumatera	-0.053	0.055	-0.362	1.147
	(2.37) *	(1.82)	(11.09) **	(25.98) **
South Sumatera	-0.044	0.018	0.399	-0.433
	(1.95)	(0.59)	(12.11) **	(9.72) **
Lampung	0.004	-0.052	-0.352	0.826
	(0.17)	(1.64)	(10.38) **	(17.71) **
West Java	0.006	-0.024	-0.180	0.593
	(0.36)	(0.99)	(7.03) **	(16.98) **
Central Java	-0.003	-0.009	0.090	0.261
	(0.15)	(0.35)	(3.28) **	(6.93) **
DI Yogyakarta	-0.034	-0.026	-0.409	0.661
	(1.44)	(0.80)	(11.88) **	(14.09) **
East Java	-0.055	0.001	-0.251	0.480
	(2.93) **	(0.04)	(9.12) **	(12.79) **
Bali	-0.047	-0.047	-0.418	0.387
	(2.02) *	(1.47)	(12.24) **	(8.25) **
West Nusa Tenggara	-0.001	-0.052	0.419	0.123
	(0.03)	(1.78)	(13.57) **	(2.91) **
South Kalimantan	-0.039	-0.032	-0.355	0.394
	(1.54)	(0.93)	(9.59) **	(8.01) **
South Sulawesi	-0.034	-0.032	0.120	-0.171
	(1.44)	(1.02)	(3.52) **	(3.80) **
Constant	0.094	0.105	0.434	-0.371
	(3.08) **	(2.74) **	(9.79) **	(6.62) **
F-test of joint significance of the interaction variables (p-values)		0.0029		0.0000
Observations	10,507		10,507	
Adjusted R-squared	0.03		0.30	

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at the 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 18 (continued)

Parent- and nurse-reported general health: Linear Probability Models of poor health

	Girls			
	Parent or self-reported		Nurse evaluation	
	1997	Change in 2000	1997	Change in 2000
Mother's education	0.000	0.000	-0.008	0.001
	(0.12)	(0.25)	(5.43) **	(0.29)
Father's education	-0.001	0.001	-0.006	-0.003
	(1.22)	(0.72)	(3.43) **	(1.30)
HH in 1997 in poverty	0.003	-0.003	0.117	-0.071
	(0.32)	(0.19)	(7.67) **	(3.34) **
0-17 months	0.006	-0.003	0.008	-0.004
	(2.78) **	(1.05)	(2.68) **	(0.95)
18-35 months	-0.003	0.000	-0.004	0.005
	(1.67)	(0.23)	(1.94)	(1.59)
36-59 months	-0.002	0.001	0.000	-0.003
	(2.39) *	(0.75)	(0.36)	(2.08) *
5-14 years	0.000	0.000	0.000	0.000
	(1.42)	(0.48)	(0.96)	(0.55)
Rural	-0.003	0.013	-0.040	0.047
	(0.29)	(1.09)	(3.09) **	(2.68) **
North Sumatera	-0.052	0.000	-0.494	0.793
	(2.50) *	(0.02)	(16.03) **	(18.97) **
West Sumatera	-0.030	0.007	-0.424	1.209
	(1.30)	(0.22)	(12.40) **	(25.72) **
South Sumatera	-0.045	0.003	0.233	-0.257
	(1.87)	(0.10)	(6.60) **	(5.46) **
Lampung	0.002	-0.053	-0.404	0.943
	(0.07)	(1.60)	(11.43) **	(19.47) **
West Java	-0.006	-0.031	-0.276	0.724
	(0.35)	(1.25)	(10.34) **	(20.08) **
Central Java	-0.053	-0.011	0.014	0.329
	(2.76) **	(0.40)	(0.49)	(8.59) **
DI Yogyakarta	-0.013	-0.052	-0.467	0.763
	(0.54)	(1.55)	(12.90) **	(15.50) **
East Java	-0.059	-0.001	-0.335	0.642
	(3.07) **	(0.03)	(11.88) **	(16.70) **
Bali	-0.054	-0.057	-0.510	0.465
	(2.16) *	(1.69)	(14.03) **	(9.41) **
West Nusa Tenggara	-0.023	-0.059	0.376	0.174
	(1.07)	(2.02) *	(12.06) **	(4.09) **
South Kalimantan	-0.020	-0.097	-0.400	0.439
	(0.80)	(2.85) **	(10.79) **	(8.77) **
South Sulawesi	-0.026	-0.065	0.106	-0.142
	(1.09)	(2.06) *	(3.02) **	(3.07) **
Constant	0.090	0.075	0.493	-0.416
	(2.87) **	(1.89)	(10.74) **	(7.10) **
F-test of joint significance of the interaction variables (p-values)		0.0912		0.0000
Observations	10,134		10,134	
Adjusted R-squared	0.02		0.30	

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at the 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 19
Adult Body Mass Index

	Male 1997	Male 2000	Male Change	Female 1997	Female 2000	Female Change
Age 15-19 years						
Mean	19.30	19.16	-0.14	20.22	20.30	0.09
	(0.061)	(0.056)	(0.083)	(0.066)	(0.061)	(0.090)
%<18.5	38.5	41.4	2.8	26.1	25.8	-0.3
	(1.25)	(1.14)	(1.69)	(1.10)	(0.97)	(1.47)
%≥25	2.2	2.1	-0.1	4.5	5.2	0.6
	(0.38)	(0.33)	(0.50)	(0.52)	(0.49)	(0.71)
%≥30	0.6	0.6	0.0	0.8	0.5	-0.3
	(0.20)	(0.18)	(0.27)	(0.22)	(0.16)	(0.28)
# observations	1509	1872		1611	2017	
Age 20-39 years						
Mean	21.13	21.15	0.02	22.07	22.14	0.07
	(0.047)	(0.041)	(0.063)	(0.052)	(0.048)	(0.071)
%<18.5	14.5	16.7	2.1	12.3	13.4	1.1
	(0.59)	(0.50)	(0.77)	(0.49)	(0.45)	(0.66)
%≥25	8.8	10.5	1.7	18.1	19.0	0.9
	(0.47)	(0.41)	(0.63)	(0.58)	(0.51)	(0.77)
%≥30	1.1	1.2	0.2	3.1	3.4	0.3
	(0.17)	(0.15)	(0.23)	(0.26)	(0.24)	(0.35)
# observations	3592	5508		4480	5816	
Age 40-59 years						
Body Mass Index						
Mean	21.58	21.89	0.31	22.68	23.18	0.51
	(0.066)	(0.062)	(0.091)	(0.079)	(0.078)	(0.111)
%<18.5	15.3	13.7	-1.7	15.5	13.7	-1.8
	(0.73)	(0.63)	(0.96)	(0.67)	(0.59)	(0.89)
%≥25	15.0	17.6	2.6	27.1	31.4	4.3
	(0.72)	(0.70)	(1.00)	(0.82)	(0.80)	(1.15)
%≥30	1.3	1.9	0.5	6.0	7.8	1.8
	(0.23)	(0.25)	(0.34)	(0.44)	(0.46)	(0.64)
# observations	2453	2290		2939	3345	
Age ≥ 60 years						
Mean	19.86	19.96	0.10	20.64	20.63	-0.01
	(0.092)	(0.085)	(0.125)	(0.119)	(0.106)	(0.160)
%<18.5	37.3	34.4	-2.9	34.5	34.9	0.4
	(1.43)	(1.28)	(1.92)	(1.31)	(1.18)	(1.76)
%≥25	6.6	7.4	0.8	15.1	15.6	0.4
	(0.73)	(0.70)	(1.02)	(0.99)	(0.89)	(1.33)
%≥30	0.8	0.7	-0.1	3.3	3.0	-0.3
	(0.26)	(0.22)	(0.34)	(0.49)	(0.42)	(0.65)
# observations	1140	1380		1315	1640	

Source: IFLS 2 and IFLS 3. Observations exclude women who were pregnant. Standard errors in parentheses.

Table 20
Usage of health care facilities by children in the last 4 weeks:
IFLS, 1997 and 2000

	All children, age 0-59 months						All children, age 5-14 years					
	Boys			Girls			Boys			Girls		
	1997	2000	Change	1997	2000	Change	1997	2000	Change	1997	2000	Change
Use any health services	60.0	53.9	-6.1*	61.8	52.6	-9.3*	12.2	11.7	-0.5	11.9	12.4	0.5
	(1.25)	(1.08)	(1.66)	(1.25)	(1.12)	(1.67)	(0.54)	(0.52)	(0.75)	(0.54)	(0.54)	(0.77)
Public services:	53.5	44.1	-9.4*	55.6	42.9	-12.7*	6.1	5.2	-0.9**	6.1	5.9	-0.1
	(1.27)	(1.08)	(1.67)	(1.28)	(1.11)	(1.69)	(0.39)	(0.36)	(0.53)	(0.40)	(0.39)	(0.56)
- Government hospitals	0.8	1.0	0.2	0.9	1.0	0.1	0.7	0.4	-0.3**	0.4	0.4	0.1
	(0.23)	(0.22)	(0.31)	(0.25)	(0.22)	(0.33)	(0.13)	(0.10)	(0.16)	(0.10)	(0.11)	(0.15)
- Puskesmas/Pustu	10.4	10.1	-0.3	9.3	10.2	0.9	5.5	4.9	-0.6	5.7	5.5	-0.2
	(0.78)	(0.66)	(1.02)	(0.74)	(0.68)	(1.01)	(0.38)	(0.35)	(0.51)	(0.39)	(0.37)	(0.54)
- Posyandu	49.3	37.6	-11.8*	51.7	37.3	-14.4*						
	(1.28)	(1.05)	(1.66)	(1.28)	(1.08)	(1.68)						
Private services:	13.1	18.0	4.9*	13.8	16.8	2.9*	6.3	6.7	0.3	6.1	6.4	0.3
	(0.86)	(0.84)	(1.20)	(0.89)	(0.84)	(1.22)	(0.40)	(0.40)	(0.57)	(0.40)	(0.40)	(0.57)
- Private hospitals	0.8	0.8	0.0	0.9	0.9	0.0	0.4	0.3	-0.2	0.3	0.3	0.0
	(0.23)	(0.19)	(0.30)	(0.24)	(0.21)	(0.32)	(0.11)	(0.08)	(0.14)	(0.10)	(0.09)	(0.13)
- Polyclinic and private doctor	6.6	8.7	2.1*	6.7	7.8	1.0	3.4	3.7	0.3	3.3	3.4	0.1
	(0.63)	(0.61)	(0.88)	(0.64)	(0.60)	(0.88)	(0.30)	(0.30)	(0.42)	(0.30)	(0.30)	(0.42)
- Nurse, midwife and paramedic	6.1	8.8	2.7*	6.7	8.4	1.7**	2.7	2.9	0.1	2.6	2.8	0.2
	(0.61)	(0.62)	(0.87)	(0.64)	(0.62)	(0.89)	(0.27)	(0.27)	(0.38)	(0.27)	(0.27)	(0.38)
Traditional health services	0.9	0.8	-0.1	0.7	0.7	0.0	0.4	0.3	-0.1	0.4	0.3	-0.1
	(0.24)	(0.19)	(0.31)	(0.21)	(0.19)	(0.28)	(0.10)	(0.09)	(0.14)	(0.10)	(0.09)	(0.14)
Other services	0.3	0.1	-0.1	0.3	0.3	0.0	0.1	0.0	0.0	0.1	0.1	0.1
	(0.13)	(0.08)	(0.15)	(0.13)	(0.11)	(0.17)	(0.04)	(0.03)	(0.05)	(0.04)	(0.05)	(0.07)
Number of observations	1,534	2,112		1,519	1,998		3,690	3,861		3,587	3,706	

Notes: Source: IFLS2 and IFLS3. Figures are in percentage. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Table 21
Immunization uptake for children under five years old: IFLS, 1997 and 2000

	All Children, age 12-59 months					
	Boys			Girls		
	1997	2000	Change	1997	2000	Change
Child received Vitamin A in 6 months	66.4	54.6	-11.8 *	68.6	53.7	-15.0 *
before the survey	(1.34)	(1.25)	(1.83)	(1.32)	(1.28)	(1.84)
Type of vaccination received:						
- BCG	82.9	85.4	2.5 **	82.8	84.0	1.2
	(1.07)	(0.89)	(1.39)	(1.08)	(0.94)	(1.43)
- Polio at birth	82.4	81.5	-1.0	81.6	81.2	-0.5
	(1.08)	(0.97)	(1.46)	(1.10)	(1.00)	(1.49)
- Polio 1	85.4	78.6	-6.8 *	85.5	79.2	-6.3 *
	(1.00)	(1.03)	(1.44)	(1.00)	(1.04)	(1.45)
- Polio 2	64.5	65.7	1.2	63.5	66.8	3.3 **
	(1.36)	(1.19)	(1.81)	(1.37)	(1.21)	(1.83)
- Polio 3	30.6	37.3	6.6 *	30.7	35.6	4.9 *
	(1.31)	(1.21)	(1.78)	(1.32)	(1.23)	(1.80)
- DPT 1	76.5	76.0	-0.5	73.8	76.4	2.7
	(1.21)	(1.07)	(1.61)	(1.25)	(1.09)	(1.66)
- DPT 2	78.9	83.4	4.5 *	78.2	82.4	4.2 *
	(1.16)	(0.93)	(1.49)	(1.18)	(0.98)	(1.53)
- DPT 3	65.7	72.2	6.4 *	65.9	73.2	7.3 *
	(1.35)	(1.12)	(1.76)	(1.35)	(1.14)	(1.77)
- Measles	50.9	60.5	9.6 *	50.9	61.3	10.4 *
	(1.42)	(1.23)	(1.88)	(1.43)	(1.25)	(1.90)
- All vaccinations (excl. Hepatitis B)	15.9	28.8	13.0 *	16.1	27.9	11.8 *
	(1.04)	(1.14)	(1.54)	(1.05)	(1.15)	(1.56)
- Hepatitis B	54.3	71.1	16.8 *	52.6	69.1	16.5 *
	(1.42)	(1.14)	(1.82)	(1.42)	(1.19)	(1.85)
- All vaccinations (incl. Hepatitis B)	12.2	26.6	14.5 *	13.2	26.1	12.8 *
	(0.93)	(1.11)	(1.45)	(0.97)	(1.13)	(1.49)
Number of observations	1,240	1,591		1,231	1,515	

Notes: Source: IFLS2 and IFLS3. Figures are in percentage. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Table 22
Usage of health care facilities by children in the last 4 weeks: Linear Probability Models

	Boys					
	Any Health Services		**Public Services**		**Private Services**	
	1997	**Change in 2000**	**1997**	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	0.003	-0.003	0.001	0.000	0.002	-0.001
	(2.32) *	(1.45)	(0.73)	(0.27)	(2.14) *	(1.06)
Father's education	0.000	0.001	-0.001	0.001	0.004	-0.002
	(0.07)	(0.52)	(1.44)	(1.10)	(3.95) **	(1.47)
HH in 1997 in poverty	-0.080	0.021	-0.025	0.010	-0.040	-0.002
	(5.82) **	(1.06)	(2.63) **	(0.77)	(3.86) **	(0.12)
0-17 months	0.008	-0.004	-0.002	0.008	0.007	-0.008
	(2.95) **	(1.33)	(1.04)	(3.39) **	(3.91) **	(3.14) **
18-35 months	-0.009	-0.003	-0.001	-0.002	-0.009	0.003
	(4.59) **	(1.18)	(0.98)	(1.07)	(5.73) **	(1.29)
36-59 months	-0.013	0.002	-0.001	-0.001	0.001	-0.001
	(12.07) **	(1.28)	(0.86)	(0.86)	(0.73)	(0.89)
5-14 years	-0.002	0.001	0.000	0.000	-0.001	0.000
	(11.99) **	(3.68) **	(3.56) **	(0.92)	(4.46) **	(0.55)
Rural	-0.034	-0.013	-0.027	0.008	-0.031	0.011
	(2.87) **	(0.80)	(3.40) **	(0.76)	(3.44) **	(0.89)
North Sumatera	-0.099	0.034	-0.043	0.007	-0.070	0.039
	(3.71) **	(0.91)	(2.38) *	(0.29)	(3.49) **	(1.41)
West Sumatera	0.048	-0.073	0.025	-0.058	-0.038	-0.028
	(1.58)	(1.77)	(1.20)	(2.07) *	(1.68)	(0.90)
South Sumatera	0.012	-0.075	0.015	-0.053	-0.016	-0.013
	(0.41)	(1.80)	(0.71)	(1.86)	(0.71)	(0.42)
Lampung	0.046	-0.045	0.003	-0.006	-0.007	-0.019
	(1.43)	(1.00)	(0.15)	(0.18)	(0.28)	(0.56)
West Java	0.065	-0.026	0.014	-0.015	-0.019	-0.010
	(2.71) **	(0.78)	(0.87)	(0.66)	(1.04)	(0.39)
Central Java	0.088	0.021	0.030	-0.031	0.017	0.026
	(3.40) **	(0.59)	(1.71)	(1.27)	(0.87)	(0.96)
DI Yogyakarta	0.166	-0.008	0.073	-0.044	0.034	0.028
	(5.07) **	(0.17)	(3.29) **	(1.44)	(1.40)	(0.84)
East Java	0.056	-0.014	0.013	-0.027	-0.017	0.023
	(2.21) *	(0.38)	(0.76)	(1.10)	(0.91)	(0.89)
Bali	0.062	-0.035	0.045	-0.018	0.003	-0.034
	(1.90)	(0.79)	(2.03) *	(0.59)	(0.11)	(1.01)
West Nusa Tenggara	0.053	-0.093	0.051	-0.058	-0.044	-0.056
	(1.83)	(2.33) *	(2.61) **	(2.13) *	(2.03) *	(1.86)
South Kalimantan	0.025	-0.094	0.010	0.000	-0.044	-0.045
	(0.72)	(2.02) *	(0.45)	(0.01)	(1.70)	(1.30)
South Sulawesi	-0.011	-0.059	0.027	-0.039	-0.071	-0.014
	(0.37)	(1.42)	(1.35)	(1.38)	(3.18) **	(0.45)
Constant	0.597	0.060	0.163	-0.089	0.121	0.142
	(15.67) **	(1.20)	(6.32) **	(2.62) **	(4.27) **	(3.79) **
F-test of joint significance of the interaction variables (p-values)		0.0000		0.0963		0.0015
Observations		11,197		11,197		11,197
Adjusted R-squared		0.26		0.02		0.06

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at the 1 percent (**) or 5 percent (*) level. Public facilities include: government hospital, puskesmas and puskesmas pembantu. Private facilities include: private hospital, polyclinic, private doctor, nurse, midwife and paramedic. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 22 (continued)
Usage of health care facilities by children in the last 4 weeks: Linear Probability Models

	Girls					
	Any Health Services		Public Services		Private Services	
	1997	Change in 2000	1997	Change in 2000	1997	Change in 2000
Mother's education	0.002	0.003	0.002	-0.001	0.003	0.001
	(1.44)	(1.38)	(2.19) *	(0.98)	(2.55) *	(0.71)
Father's education	0.003	0.000	0.000	0.000	0.001	0.003
	(1.79)	(0.14)	(0.41)	(0.08)	(0.86)	(2.26) *
HH in 1997 in poverty	-0.074	0.033	-0.025	0.031	-0.054	0.002
	(5.26) **	(1.62)	(2.61) **	(2.28) *	(5.26) **	(0.13)
0-17 months	0.003	-0.005	0.002	-0.001	0.003	0.001
	(1.28)	(1.38)	(1.11)	(0.32)	(1.50)	(0.37)
18-35 months	-0.002	-0.005	-0.004	0.004	-0.006	0.002
	(0.76)	(1.68)	(3.05) **	(1.95)	(4.14) **	(1.12)
36-59 months	-0.018	0.007	0.001	-0.002	-0.001	-0.001
	(16.49) **	(4.65) **	(1.42)	(2.21) *	(1.04)	(1.06)
5-14 years	-0.002	0.000	0.000	0.000	0.000	0.000
	(10.52) **	(1.06)	(4.14) **	(0.43)	(3.17) **	(1.42)
Rural	-0.028	0.003	-0.018	0.005	-0.017	-0.002
	(2.29) *	(0.17)	(2.18) *	(0.46)	(1.86)	(0.20)
North Sumatera	-0.094	-0.041	-0.026	-0.021	-0.057	0.016
	(3.37) **	(1.04)	(1.36)	(0.77)	(2.77) **	(0.57)
West Sumatera	0.044	-0.072	0.033	-0.033	-0.034	-0.031
	(1.41)	(1.65)	(1.55)	(1.10)	(1.47)	(0.97)
South Sumatera	0.017	-0.056	0.013	-0.046	-0.008	0.000
	(0.55)	(1.28)	(0.61)	(1.54)	(0.33)	(0.01)
Lampung	0.038	-0.099	0.009	-0.041	-0.015	-0.004
	(1.15)	(2.15) *	(0.40)	(1.30)	(0.62)	(0.11)
West Java	0.060	-0.067	0.026	-0.036	-0.013	-0.015
	(2.49) *	(1.99) *	(1.58)	(1.58)	(0.75)	(0.61)
Central Java	0.062	-0.022	0.004	-0.024	-0.017	0.023
	(2.41) *	(0.60)	(0.22)	(0.99)	(0.91)	(0.86)
DI Yogyakarta	0.184	-0.084	0.086	-0.063	0.048	-0.027
	(5.44) **	(1.81)	(3.75) **	(1.99) *	(1.93)	(0.79)
East Java	0.057	-0.043	0.046	-0.035	-0.024	0.021
	(2.24) *	(1.20)	(2.65) **	(1.42)	(1.29)	(0.81)
Bali	0.066	-0.168	0.030	-0.062	0.006	-0.070
	(1.94)	(3.62) **	(1.31)	(1.96)	(0.22)	(2.05) *
West Nusa Tenggara	0.053	-0.131	0.060	-0.082	-0.066	-0.019
	(1.84)	(3.26) **	(3.06) **	(3.02) **	(3.13) **	(0.65)
South Kalimantan	0.032	-0.149	0.064	-0.081	-0.077	0.026
	(0.94)	(3.17) **	(2.74) **	(2.54) *	(3.05) **	(0.76)
South Sulawesi	-0.004	-0.134	0.030	-0.075	-0.046	-0.053
	(0.12)	(3.16) **	(1.41)	(2.59) *	(2.04) *	(1.70)
Constant	0.633	0.015	0.087	0.029	0.192	-0.024
	(16.35) **	(0.29)	(3.31) **	(0.83)	(6.78) **	(0.64)
F-test of joint significance of the interaction variables (p-values)		0.0000		0.0358		0.0402
Observations		10,810		10,810		10,810
Adjusted R-squared		0.25		0.02		0.05

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at the 1 percent (**) or 5 percent (*) level. Public facilities include: government hospital, puskesmas and puskesmas pembantu. Private facilities include: private hospital, polyclinic, private doctor, nurse, midwife and paramedic. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 23
Posyandu usage during last 4 weeks: Linear Probability Models of usage by children aged 0-59 months

	Boys		Girls	
	1997	Change in 2000	1997	Change in 2000
Mother's education	0.000	-0.002	-0.002	0.006
	(0.02)	(0.68)	(0.74)	(1.58)
Father's education	-0.002	0.001	0.004	-0.004
	(0.68)	(0.36)	(1.44)	(1.16)
HH in 1997 in poverty	-0.091	0.023	-0.043	0.015
	(2.99) **	(0.52)	(1.43)	(0.34)
0-17 months	0.008	-0.010	0.003	-0.002
	(2.70) **	(2.45) *	(0.98)	(0.60)
18-35 months	-0.012	0.003	-0.001	-0.011
	(4.71) **	(0.75)	(0.27)	(3.29) **
36-59 months	-0.001	-0.006	-0.012	0.010
	(0.48)	(2.06) *	(5.29) **	(3.28) **
Rural	0.029	-0.092	0.012	-0.001
	(1.09)	(2.63) **	(0.45)	(0.03)
North Sumatera	-0.051	-0.090	-0.122	-0.163
	(0.86)	(1.14)	(2.02) *	(1.96)
West Sumatera	0.109	-0.105	0.187	-0.159
	(1.62)	(1.18)	(2.70) **	(1.70)
South Sumatera	0.063	-0.192	0.021	-0.144
	(0.89)	(2.07) *	(0.29)	(1.50)
Lampung	0.205	-0.256	0.116	-0.226
	(2.86) **	(2.65) **	(1.54)	(2.27) *
West Java	0.221	-0.099	0.222	-0.136
	(4.22) **	(1.44)	(4.34) **	(1.95)
Central Java	0.214	0.013	0.220	-0.072
	(3.67) **	(0.17)	(3.93) **	(0.95)
DI Yogyakarta	0.305	0.009	0.446	-0.202
	(4.13) **	(0.09)	(5.99) **	(2.01) *
East Java	0.205	-0.101	0.156	-0.115
	(3.57) **	(1.33)	(2.79) **	(1.51)
Bali	0.092	-0.111	0.153	-0.271
	(1.22)	(1.14)	(2.07) *	(2.82) **
West Nusa Tenggara	0.081	-0.067	0.159	-0.228
	(1.22)	(0.76)	(2.50) *	(2.63) **
South Kalimantan	0.178	-0.292	0.065	-0.254
	(2.35) *	(2.98) **	(0.90)	(2.62) **
South Sulawesi	0.108	-0.147	0.011	-0.135
	(1.56)	(1.64)	(0.16)	(1.49)
Constant	0.351	0.186	0.401	0.063
	(5.68) **	(2.31) *	(6.63) **	(0.77)
F-test of joint significance of the interaction variables (p-values)		0.0000		.00002
Observations	3,676		3,517	
Adjusted R-squared	0.12		0.12	

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 24
Immunization uptake for children under five years old:
Linear Probability Models of children with completed vaccination uptake

	Boys		Girls	
	1997	**Change in 2000**	**1997**	**Change in 2000**
Mother's education	0.006	-0.002	0.007	-0.001
	(2.42) *	(0.65)	(2.77) **	(0.27)
Father's education	0.006	-0.001	0.008	0.001
	(2.12) *	(0.33)	(2.93) **	(0.41)
HH in 1997 in poverty	-0.018	-0.104	-0.024	-0.076
	(0.67)	(2.56) *	(0.91)	(1.90)
0-17 months	0.008	-0.016	0.010	-0.009
	(0.91)	(1.27)	(1.10)	(0.64)
18-35 months	-0.003	0.002	-0.003	0.001
	(1.11)	(0.52)	(1.06)	(0.23)
36-59 months	0.000	-0.003	-0.001	0.000
	(0.07)	(1.40)	(0.60)	(0.19)
Rural	-0.065	-0.045	-0.019	-0.057
	(2.70) **	(1.39)	(0.79)	(1.74)
North Sumatera	0.038	0.023	0.043	0.023
	(0.70)	(0.32)	(0.79)	(0.31)
West Sumatera	0.154	0.040	0.091	0.069
	(2.53) *	(0.49)	(1.43)	(0.81)
South Sumatera	0.033	0.190	0.002	0.115
	(0.52)	(2.24) *	(0.03)	(1.31)
Lampung	0.116	0.033	0.060	0.071
	(1.77)	(0.37)	(0.87)	(0.77)
West Java	0.071	0.159	0.102	0.165
	(1.48)	(2.48) *	(2.17) *	(2.58) *
Central Java	0.053	0.302	0.097	0.258
	(1.01)	(4.29) **	(1.91)	(3.71) **
DI Yogyakarta	0.206	0.205	0.367	0.062
	(3.07) **	(2.27) *	(5.40) **	(0.67)
East Java	0.071	0.376	0.161	0.278
	(1.37)	(5.35) **	(3.14) **	(4.02) **
Bali	0.387	-0.041	0.387	-0.157
	(5.76) **	(0.46)	(5.60) **	(1.75)
West Nusa Tenggara	0.066	0.273	0.061	0.203
	(1.09)	(3.39) **	(1.07)	(2.59) *
South Kalimantan	0.138	0.117	-0.002	0.280
	(2.07) *	(1.30)	(0.03)	(3.19) **
South Sulawesi	0.064	0.352	0.055	0.255
	(1.02)	(4.29) **	(0.90)	(3.07) **
Constant	-0.086	0.301	-0.155	0.135
	(0.56)	(1.41)	(0.98)	(0.61)
F-test of joint significance of the interaction variables (p-values)		0.0000		0.0000
Observations	2,831		2,746	
Adjusted R-squared	0.12		0.12	

Notes: Source: IFLS2 and IFLS3. Absolute value of t-statistics in parentheses. Significant at 1 percent (**) or 5 percent (*) level. Dummy variables of missing parental education, household with missing PCE information and households in 2000 that cannot be matched to those in 1997 are included in the regressions but are not reported on the table.

Table 25
Provision of general services by Public and Private Facilities

	Public Facilities			Private Facilities		
	1997	2000	Change	1997	2000	Change
Check-up + injection + medicine	99.5	98.7	-0.7 **	83.2	86.9	3.7 *
	(0.24)	(0.36)	(0.44)	(0.88)	(0.77)	(1.17)
Medical treatment of tuberculoses	79.1	77.1	-2.1	27.4	25.7	-1.7
	(1.34)	(1.37)	(1.92)	(1.05)	(1.00)	(1.45)
Dental exam [a)]	65.4	68.8	3.4			
	(1.57)	(1.51)	(2.18)			
Prenatal care	95.1	95.0	-0.1	61.4	63.7	2.3
	(0.71)	(0.71)	(1.00)	(1.14)	(1.10)	(1.59)
Delivery	24.7	30.9	6.2 *	41.9	45.4	3.5 *
	(1.42)	(1.50)	(2.07)	(1.16)	(1.14)	(1.63)
Immunization:						
- BCG	82.5	86.2	3.7 *	33.3	30.7	-2.6 **
	(1.25)	(1.12)	(1.68)	(1.11)	(1.06)	(1.53)
- DPT	82.6	86.4	3.8 *	34.6	32.1	-2.5
	(1.25)	(1.12)	(1.68)	(1.12)	(1.07)	(1.55)
- Anti polio	82.5	86.5	4.0 *	34.5	32.2	-2.3
	(1.25)	(1.11)	(1.68)	(1.11)	(1.07)	(1.55)
- Measles	82.7	86.4	3.6 *	34.1	31.1	-3.0 *
	(1.25)	(1.12)	(1.67)	(1.11)	(1.06)	(1.54)
- Tetanus Toxoid for pregnant women	88.4	89.6	1.3	43.4	40.5	-2.9 **
	(1.06)	(0.99)	(1.45)	(1.16)	(1.13)	(1.62)
- Hepatitis B	78.9	84.7	5.8 *	31.0	33.4	2.3
	(1.35)	(1.17)	(1.78)	(1.08)	(1.08)	(1.53)
Number of Observations	920	946		1,819	1,904	

Notes: Source: IFLS2 and IFLS3. [a)] Information on dental exam at the private facilities is not collected. Figures are in percentage. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Table 26
Stock outages of vaccines during the last 6 months by Public and Private Facilities

	Stock outages among those providing a)						Among those with a stock outage, number of weeks of stock outage b)					
	Public Facilities			Private Facilities			Public Facilities			Private Facilities		
	1997	2000	Change	1997	2000	Change	1997	2000	Change	1997	2000	Change
BCG	7.1	2.7	-4.4 *	13.1	8.0	-5.1 *	4.4	2.8	-1.6	6.7	8.5	1.7
	(1.03)	(0.61)	(1.20)	(1.53)	(1.18)	(1.93)	(1.09)	(0.46)	(1.19)	(1.08)	(1.44)	(1.80)
DPT	6.6	3.0	-3.6 *	9.2	5.0	-4.1 *	4.5	4.3	-0.2	8.6	8.7	0.1
	(1.00)	(0.64)	(1.18)	(1.29)	(0.93)	(1.59)	(1.17)	(1.46)	(1.87)	(1.44)	(1.82)	(2.32)
Anti polio	7.1	3.5	-3.5 *	9.0	6.1	-2.9 **	4.4	1.9	-2.5 *	8.9	7.7	-1.2
	(1.03)	(0.69)	(1.24)	(1.28)	(1.02)	(1.64)	(1.09)	(0.33)	(1.14)	(1.45)	(1.59)	(2.15)
Measles	6.4	2.8	-3.6 *	10.4	5.4	-5.1 *	4.5	3.3	-1.2	7.6	10.0	2.4
	(0.98)	(0.62)	(1.17)	(1.37)	(0.97)	(1.68)	(1.20)	(1.13)	(1.64)	(1.26)	(1.83)	(2.22)
Tetanus toxoid	6.5	1.9	-4.6 *	12.4	5.8	-6.6 *	4.7	1.9	-2.8 *	5.8	7.5	1.7
	(0.99)	(0.51)	(1.11)	(1.35)	(0.89)	(1.61)	(1.17)	(0.29)	(1.20)	(0.92)	(1.44)	(1.71)
Hepatitis B	9.7	5.4	-4.3 *	10.9	8.5	-2.4	4.6	2.8	-1.8 **	7.6	7.7	0.0
	(1.20)	(0.85)	(1.47)	(1.46)	(1.16)	(1.86)	(0.94)	(0.43)	(1.03)	(1.19)	(1.19)	(1.68)

Notes: Source: IFLS2 and IFLS3. [a] Figures are in percentage. [b] Figures are in number of week. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Table 27
Provision of services by Posyandu

	1997	2000	Change
Provision of supplementary food	87.9	94.9	7.0 *
	(1.31)	(0.87)	(1.58)
Provision of oralit	92.4	83.0	-9.4 *
	(1.07)	(1.50)	(1.84)
Provision of iron and vitamin supplement	75.4	72.4	-3.0
	(1.73)	(1.78)	(2.48)
Treatment of patients	30.4	26.9	-3.4
	(1.85)	(1.77)	(2.56)
Immunization service	90.3	87.2	-3.1 **
	(1.19)	(1.33)	(1.79)
Pregnancy examination	61.2	62.9	1.7
	(1.96)	(1.92)	(2.75)
Child growth monitoring	49.9	35.7	-14.3 *
	(2.01)	(1.91)	(2.77)
Maternal and child health	37.3	45.8	8.5 *
	(1.95)	(1.99)	(2.78)
Family planning services:			
- Provision of oral contraceptive	74.0	49.6	-24.4 *
	(1.76)	(1.99)	(2.66)
- Provision of condom	29.6	28.4	-1.2
	(1.84)	(1.80)	(2.57)
- Provision of injectable contraceptive	29.6	17.1	-12.4 *
	(1.84)	(1.50)	(2.37)
- Treatment of contraceptive side effects	18.3	11.7	-6.5 *
	(1.55)	(1.28)	(2.01)
- Family planning counseling	47.7	66.7	19.1 *
	(2.01)	(1.88)	(2.75)
Number of Observations	619	631	

Notes: Source: IFLS2 and IFLS3. Figures are in percentage. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Table 28
Availability of supplies and instruments by Posyandu

	1997	2000	Change
Cards:			
- KMS cards	94.7	70.8	-23.8 *
	(0.90)	(1.81)	(2.02)
- Pregnant mother cards	53.5	32.6	-20.8 *
	(2.01)	(1.87)	(2.74)
Drugs:			
- Oralit	83.5	59.9	-23.6 *
	(1.49)	(1.95)	(2.46)
- Iron tablets	65.9	43.6	-22.3 *
	(1.91)	(1.98)	(2.75)
- Vitamin A	80.8	53.7	-27.1 *
	(1.59)	(1.99)	(2.54)
- Other drugs	9.5	13.2	3.6 *
	(1.18)	(1.35)	(1.79)
Contraceptives:			
- Oral contraceptives	73.0	36.5	-36.6 *
	(1.79)	(1.92)	(2.62)
- Condom	28.3	16.2	-12.1 *
	(1.81)	(1.47)	(2.33)
Books and other instruments:			
- Demonstration tools/books	43.8	32.2	-11.6 *
	(2.00)	(1.86)	(2.73)
- Instruction books for the BKB program	57.2	52.3	-4.9 **
	(1.99)	(1.99)	(2.81)
- Children's toys	32.1	24.2	-7.9 *
	(1.88)	(1.71)	(2.54)
- Baby scales	95.5	95.4	-0.1
	(0.84)	(0.83)	(1.18)
- Height measuring devices	26.7	27.1	0.4
	(1.78)	(1.77)	(2.51)
Number of Observations	619	631	

Notes: Source: IFLS2 and IFLS3. Figures are in percentage. Standard errors are in parentheses. Significant at the 5 percent (*) or 10 percent (**) level.

Appendix 1 Table 1
Age/Gender and Location Characteristics of IFLS and SUSENAS: 1997 and 2000

Percentages of Male and Female

	Susenas 1997 weighted	IFLS 1997 weighted	IFLS 1997 unweighted	Susenas 2000 weighted	IFLS 2000 unweighted
Male	49.6	49.6	48.3	50.0	48.8
Female	50.4	50.4	51.7	50.0	51.2
Total	100.0	100.0	100.0	100.0	100.0
# observations	609782	33934	33934	584675	43649

Percentages of Individuals in Age Groups, Male and Female

	Susenas 1997 weighted		IFLS 1997 weighted		IFLS 1997 unweighted		Susenas 2000 weighted		IFLS 2000 unweighted	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-59 months	9.2	8.7	9.2	8.7	9.7	9.0	8.7	8.3	10.6	9.7
5-9 years	11.1	10.4	11.1	10.3	11.2	9.9	10.4	9.8	9.9	8.9
10-14 years	12.4	11.4	12.4	11.4	12.5	11.5	10.8	10.1	10.3	9.4
15-19 years	10.7	10.3	10.7	10.3	11.8	11.1	10.9	10.2	11.0	11.4
20-24 years	8.0	9.1	8.1	9.1	7.4	7.8	8.7	8.9	9.5	10.0
25-29 years	8.0	8.9	8.0	8.9	7.3	7.7	8.3	9.0	8.7	8.3
30-34 years	7.4	8.0	7.5	8.3	7.2	7.9	7.6	7.9	7.7	7.5
35-39 years	7.5	7.7	7.4	7.4	6.9	7.2	7.5	7.9	6.5	7.0
40-44 years	6.4	5.9	6.0	6.1	5.7	6.1	6.6	6.4	5.9	5.9
45-49 years	4.9	4.6	5.2	4.3	4.9	4.3	5.6	5.1	4.8	4.9
50-54 years	4.1	4.2	3.5	3.8	3.7	4.1	4.0	4.4	3.6	3.5
55-59 years	3.1	3.2	3.6	3.7	3.6	4.1	3.3	3.4	3.3	3.6
60+ years	7.2	7.7	7.3	7.6	8.2	9.2	7.6	8.5	8.1	9.6
All age groups	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Percentages of Individuals in Urban and Rural Areas, Male and Female

	Susenas 1997 weighted		IFLS 1997 weighted		IFLS 1997 unweighted		Susenas 2000 weighted		IFLS 2000 unweighted	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Urban	39.2	39.3	40.2	40.3	47.3	47.6	44.1	44.4	48.7	48.8
Rural	60.8	60.7	59.8	59.7	52.7	52.4	55.9	55.6	51.3	51.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Percentages of Individuals by Provinces, Male and Female

	Susenas 1997 weighted		IFLS 1997 weighted		IFLS 1997 unweighted		Susenas 2000 weighted		IFLS 2000 unweighted	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
North Sumatera	6.9	6.9	5.4	5.3	7.7	7.3	6.9	6.8	7.2	7.0
West Sumatera	2.6	2.8	4.1	4.2	5.4	5.5	2.5	2.6	5.1	5.2
South Sumatera	4.6	4.5	4.9	4.8	5.3	4.8	4.6	4.6	5.6	5.2
Lampung	4.3	4.1	4.2	4.0	4.3	3.9	4.1	3.8	4.0	3.8
DKI Jakarta	5.8	5.6	5.9	5.7	9.5	9.1	5.0	5.0	8.8	8.6
West Java	25.0	24.1	24.9	23.9	17.4	16.5	26.3	25.4	18.3	17.5
Central Java	18.2	18.3	14.1	14.3	12.0	13.0	18.2	18.5	12.0	12.5
DI Yogyakarta	1.8	1.8	5.5	5.5	5.3	5.6	1.8	1.9	4.9	5.1
East Java	20.5	21.2	20.6	21.4	12.9	13.5	20.2	20.9	13.3	13.9
Bali	1.8	1.8	1.7	1.7	4.5	4.5	1.9	1.9	4.5	4.6
West Nusa Tenggara	2.2	2.4	2.3	2.5	6.1	6.6	2.2	2.3	6.2	6.5
South Kalimantan	1.8	1.8	2.8	2.8	4.2	4.0	1.8	1.8	4.5	4.3
South Sulawesi	4.6	4.8	3.6	3.9	5.4	5.6	4.5	4.7	5.6	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: SUSENAS 1997, SUSENAS 2000, IFLS 2, and IFLS 3

Appendix 1 Table 2
Completed Education of 20 Year Old and Above in IFLS and SUSENAS: 1997 and 2000

	Susenas 1997 weighted		IFLS 1997 weighted		IFLS 1997 unweighted		Susenas 2000 weighted		IFLS 2000 unweighted	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Total										
Highest education level completed										
No schooling	8.6	19.6	10.8	23.4	10.7	24.3	7.9	18.0	8.3	19.7
Some primary school	20.0	22.2	23.4	23.5	22.9	23.4	18.1	20.8	19.6	21.8
Completed primary sch.	32.4	30.4	27.7	25.6	26.3	23.7	31.7	30.6	26.1	23.9
Completed junior HS	13.4	10.5	12.2	9.5	12.3	9.7	14.3	11.4	13.8	11.0
Completed senior HS	20.9	14.4	21.1	14.8	22.3	15.4	22.8	15.7	25.0	18.2
Completed Academy	2.2	1.6	2.1	1.8	2.4	1.9	2.1	1.8	3.0	2.7
Completed university	2.5	1.3	2.7	1.5	3.1	1.6	3.1	1.8	4.2	2.6
# observations	168879	182251	9537	10127	9006	10256	170308	180810	11930	13006
Urban										
Highest education level completed										
No schooling	3.7	10.7	3.9	12.1	4.9	14.9	3.6	10.7	3.8	12.3
Some primary school	10.7	14.8	14.0	17.2	15.1	18.8	10.3	14.4	12.8	17.0
Completed primary sch.	23.9	26.7	23.6	24.3	23.6	23.3	24.4	26.9	21.4	21.5
Completed junior HS	17.1	15.7	15.5	14.0	15.1	13.3	16.7	14.9	15.4	13.6
Completed senior HS	35.6	26.3	34.0	25.9	32.4	23.9	35.7	26.5	35.4	27.0
Completed Academy	4.2	3.2	3.8	3.2	3.8	3.0	3.6	3.2	4.4	4.3
Completed university	5.0	2.7	5.1	3.2	5.1	2.9	5.8	3.4	6.9	4.3
# observations	64652	69139	3957	4142	4395	5003	74090	78517	5934	6542
Rural										
Highest education level completed										
No schooling	11.9	25.4	15.6	31.1	16.3	33.1	11.4	23.9	12.8	27.2
Some primary school	26.4	27.2	30.1	27.8	30.3	27.9	24.7	26.0	26.5	26.7
Completed primary sch.	38.2	32.9	30.5	26.5	29.0	24.1	37.8	33.7	30.7	26.3
Completed junior HS	10.8	7.1	9.9	6.4	9.7	6.4	12.2	8.4	12.2	8.5
Completed senior HS	11.0	6.5	12.0	7.2	12.7	7.4	12.1	6.9	14.6	9.3
Completed Academy	0.9	0.6	0.9	0.7	1.0	0.8	1.0	0.7	1.6	1.2
Completed university	0.7	0.4	1.0	0.3	1.1	0.3	0.8	0.4	1.5	0.8
# observations	104227	113112	5580	5985	4611	5253	96218	102293	5996	6464

Source: SUSENAS 1997, SUSENAS 2000, IFLS 2, and IFLS 3

Appendix 1 Table 3
Household Comparisons of IFLS and SUSENAS: 1997 and 2000

	Susenas 1997 weighted	IFLS 1997 weighted	IFLS 1997 unweighted	Susenas 2000 weighted	IFLS 2000 unweighted
Average household size	4.1	4.4	4.5	4.0	4.2
Average # of children 0-4.9 years	0.4	0.4	0.4	0.3	0.4
Average # of children 5-14.9 years	0.9	1.0	1.0	0.8	0.8
Average # of adult 15-59.9 years	2.5	2.6	2.6	2.5	2.6
Average # of adult 60+ years	0.3	0.4	0.4	0.3	0.4
% male headed households	86.8	82.0	82.5	86.2	82.5
Average age of household head	45.1	47.5	47.3	45.8	45.2
Education of household head					
% with no schooling	13.7	19.0	17.4	13.2	14.1
% with some primary school	23.9	27.9	26.8	22.4	23.4
% completed primary school	32.0	26.2	25.5	31.5	25.3
% completed junior high school	11.4	9.7	10.4	11.9	12.3
% completed senior high school	15.2	13.6	15.4	16.5	18.7
% completed academy	1.9	1.6	1.9	1.9	2.7
% completed university	2.0	2.1	2.5	2.6	3.6
% households in urban areas	39.0	39.0	45.9	44.0	48.0
# households	146351	7622	7619	144058	10435

Source: SUSENAS 1997, SUSENAS 2000, IFLS 2, and IFLS 3

Appendix 1 Table 4
Poverty lines

Province	February 1999		December 2000	
	Rural	Urban	Rural	Urban
North Sumatera	74,460	83,462	81,043	83,662
West Sumatera	78,499	85,361	79,035	87,377
South Sumatera	79,962	85,579	78,994	84,141
Lampung	78,637	88,877	79,180	89,820
Jakarta	-	102,814	-	107,766
West Java	86,024	94,405	85,351	95,594
Central Java	78,461	85,009	75,351	85,111
DI Yogyakarta	83,304	92,644	77,094	92,086
East Java	80,020	85,024	80,752	84,480
Bali	94,405	97,794	95,007	102,020
West Nesa Tenggara	84,718	87,783	87,832	85,282
South Kalimantan	82,932	86,921	77,716	89,769
South Sulawesi	74,376	84,561	82,259	87,361

Notes: Sources: February 1999 figures are from Pradhan et al (2000). December 2000 figures are computed by applying the deflators calculated by authors as described in the text.